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HOMES FOR WORKMEN

A Presentation of Leading Examples of Industrial Community Development

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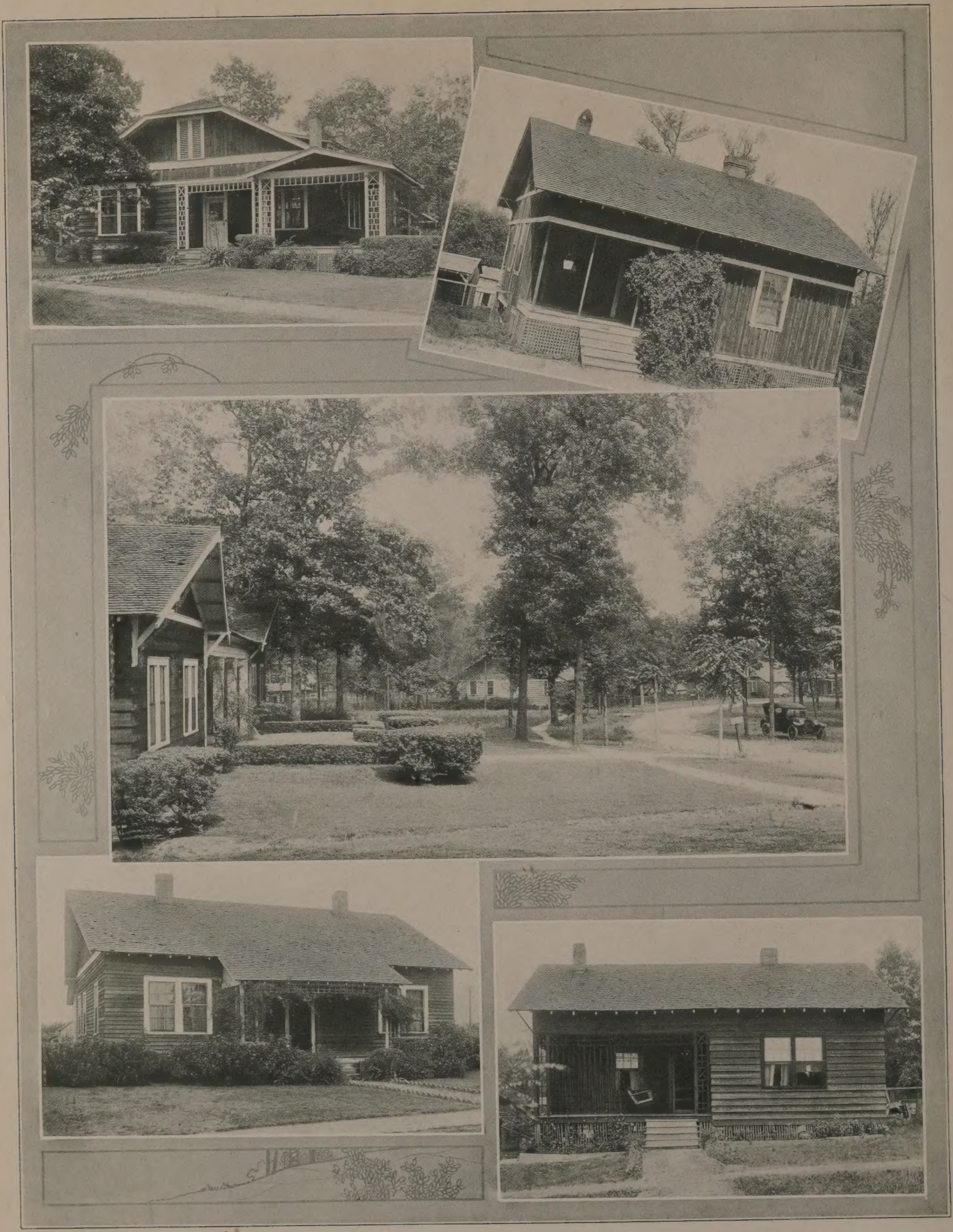

STREET SCENES AND TYPES OF HOMES IN KAULTON, ALABAMA, A SOUTHERN PINE MANUFACTURING VILLAGE

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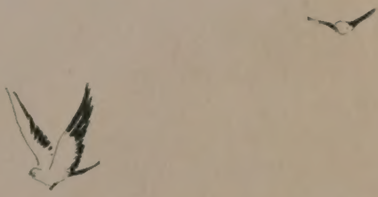

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INTRODUCTION

> *The purpose of this publication is to present certain general and specific facts concerning industrial housing which may be of value in directing those interested in arriving at correct conclusions as to how best to solve this problem in their own communities.*

A DIFFICULT though insistent problem confronting industry today is that of providing proper living conditions for workmen and their families, to insure the adequacy, stability and efficiency of labor. At hundreds of places there is need for more houses and better houses. In some centers where abnormal development has taken place the housing shortage is so acute that factory output cannot be brought up to the required volume. Community housing enterprises, undertaken along proper lines, will avoid the methods of speculative builders, and will not find their incentive in the earning of large dividends and profits to investors. While industrial housing projects should, and will if properly managed, yield a return on the investment, those financing housing companies will derive their principal gain indirectly through general community betterment, which has a distinct and tangible value. The manufacturer will, of course, be the principal beneficiary, and will accordingly bear the greater part of the housing burden, if there must be a burden. While the benefits to the manufacturer are quite generally recognized, the community benefits derived from a well-housed and, therefore, contented and self-respecting labor element, have rarely been given proper consideration in this country. An established industrial community can have no better asset than an adequate supply of well-built, attractive homes, for the reason that it is to that town or city in which the labor supply is stable, and its standards of morality and industry in consequence high, that the manufacturer seeking industrial location instinctively turns. Everywhere that a properly conceived housing program has been put into effect in a manufacturing community it has been attended by an increase in the prosperity of all the mercantile and financial, as well as the manufacturing elements of the community, and also an advance in educational and moral standards.

No attempt is made in this preface to discuss the many complex elements of industrial housing. The financial and other problems involved are considered by well-known authorities in special articles appearing in the following pages of this book.

SOUTHERN PINE ASSOCIATION

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THE INDUSTRIAL VILLAGE

By JOHN NOLEN

Town and City Planner, Cambridge, Mass.

THE problem of industrial housing in its broader phases may perhaps be best expressed by the term "community development." *It calls for the creation of a complete industrial town or village.* It cannot be solved by the mere building of houses, even though they be of good types. From the first step to the last, the solution of these problems requires not only common sense, but special skill and experience. Furthermore, the problems of industrial housing are related to the still wider and more technical problems of town planning, town building, and the proper maintenance of the houses and the efficient administration of the town of which they form an essential part.

Fundamental Questions

The fundamental questions which should be asked in the planning of an industrial suburb or village are the following:

1. What should determine the selection of a tract of land for an industrial village development?
2. What size tract is necessary, or at any rate desirable?
3. How important is the relation of the tract to the plan of the city, its business and amusement centers, its transportation routes, the location of factories, etc.?
4. What general principles should control the division of the property into zones,— that is, the selection of areas for industrial and railroad development, for open spaces, parks and public reservations, stores and shops, public building sites, homes, etc.?
5. What determines the location of streets?
6. What are the best sizes and shapes of blocks and lots?
7. Which are the most desirable house types?
8. Should the tract be designed so as to be convertible,— that is, adaptable to a use other than that for which the plan was made?
9. Are the houses to be rented or sold?
10. What provision is to be made for the maintenance of the property?

Selection of Land

The first step, namely, the proper selection of a site for an industrial village, is one that is often taken without due regard to the final purpose of the development and consideration of its relation to the steps which must follow. The skill and experience which are of service in the laying out of the property would be of even greater service if employed in time to have a part in the selection of the land. Therefore, would it not be well to engage your expert first? Also, to keep secret the preference for land until an option is obtained? Otherwise, you must pay the speculator a bonus.

In selecting land for industrial housing, the points of greatest importance are as follows:

LOCATION. Usually it should be suburban or out of town, or actually in the open country. It is an advantage if the section is within walking distance, say, fifteen minutes, of the factories, which in many cases should themselves be moved to an out-of-town location.

COST. The value of the raw land, unimproved, should be low — for unskilled workers, $500 an acre or less; for skilled workers about $1,000 an acre. The public utilities, sewer, water, sidewalk, curbing and the rough grading of the streets vary in cost in different places and at different times. Conservative figures for these utilities for detached houses are $2,000 per acre, and for attached houses, or houses of more than two in a single group or row, $2,500 per acre.

Size of Tract. In order to provide for a complete local community giving the necessary streets, open spaces, stores and shops, public building sites, amusements and the other features of neighborhood life; also to take care of the cost of the indispensable utilities, such as water supply, sewage disposal, etc., the tract should be usually not less than one hundred acres. Two hundred acres is even better. Fifty acres should be considered a minimum for a complete development. In some cases a thousand acres would not be too much.

Boundaries. The boundaries in the case of a tract with a strongly marked character should usually follow the topographical features. Unless streams or water courses are wide, both sides should be included. So also with main streets. If they are located on the boundary of the property, the development should include both sides of the streets and the boundary of the tract run to the back line of the surrounding lots.

Topography. The topographical character of the land is likewise of great importance in the choice of a site. If it is too flat, the result is apt to be monotonous and even ill drained. On the other hand, if it is too broken or steep, the development is inconvenient and costly. A slightly undulating or rolling topography is on the whole best for all purposes. Woods or single trees enhance the value and attractiveness of the property, and should be carefully preserved wherever possible. Furthermore, land which is very flat can often be better used for factories, and land which is very broken is well suited for parks and public reservations. Marsh land, if it is to be used, is also apt to be more desirable, when reclaimed, for factories or parks rather than homes.

Laying Out the Tract

Streets and Roads. In making a plan for a village, the first step usually, after the choice of the tract and the preparation of the survey, is to study the property with a view to the location of streets and roads. Although a good street system is of primary importance to convenience and economy, its establishment has not usually been presumed to involve any special knowledge or skill beyond that of the surveyor, nor of any different point of view from that of the real estate operator. Most of such planning in the United States has been undertaken from the proprietary standpoint. It has been done for the owners of the land, and largely with a view to early and profitable sales. The importance of the street rests in the fact that it is the channel of all the ordinary means of public circulation and public service; that it is essential to the profitable development and use of property; that only through the opportunities it offers can there be any broad or attractive expression of community life; and that only through a comprehensive, well ordered system of main streets and roads can the functions of the town or village be performed with economy and efficiency.

Every decision with regard to the street is important,— its location, its width, its direction, its subdivision, its grade, its planting, its lighting, etc. With few exceptions these decisions concern the general public far more than individuals or groups of individuals who happen to reside or own property on the particular street under consideration. Streets should connect as directly as possible the main points of a town. They should take people where they want to go. Different streets have different functions, and practically every street is related, or should be, to some other street. These varying functions require varying treatment, especially with regard to street widths. In most communities the area given up to streets is ample, but its distribution has been arbitrary and accidental.

Local Streets and Alleys

The requirements of local streets, in which classification most village streets are included, are different from main thoroughfares, or even secondary streets. The local street should not be broad, and to make it so incurs needless expense for grading and paving as well as waste of land. If the local street is narrow it keeps traffic off and it acquires a quality more distinctly domestic. It is cosier, quieter and more attractive. There are many good examples of local streets laid out with a total width between property lines of 40 feet or even less, the roadway itself being not more than from 18 to 24 feet, which is ample. The popular danger is streets of greater width than necessary, especially the paved roadway.

In planning the street system opportunity should be sought for creating minor public open spaces and appropriate sites for public and semi-public buildings. The selection and planning of such features, or planning with a view to their establishment in the future, should be part of the study of the street plan. Both the convenience and the effect of public buildings are largely lost without suitable approaches, giving advantageous view points.

ALLEYS. What about the alley? The alley, except where more than two houses are built attached side by side, is unnecessary, wasteful, inexcusable. There is no reason justifying the back alley for detached or semi-detached houses. The possible need for the alley begins only when three or more houses are constructed as a group. Primarily the problem is, how can the householder handle the garbage and ashes and other waste material of the house so that they can be removed in a convenient and sanitary way from the premises. One method, of course, and one widely used in the United States notwithstanding the fact that few cities have row houses, is the back alley. The objections to it are, first, the cost in land, then the cost of a suitable pavement, and finally, the difficulty as well as cost of maintenance, cleaning, lighting and policing. Unless provision is made for public or other guaranteed maintenance, the alley, no matter by what name it is called, is almost certain to become a nuisance, and should not be included in the laying-out of industrial villages. Its dangers to health and morals are too great.

What are the alternatives? One, of course, is to ignore the necessity for service arrangements altogether, and trust to the householder to work out somehow, through the cellar window or otherwise, the regular removal of garbage, ashes, and other forms of waste. This arrangement, or rather lack of arrangement, is if anything more inconvenient than the alley, and almost equally unsatisfactory, although in different ways. So obvious and unescapable and regular a requirement should be met in some regular, businesslike fashion.

The other alternative, which perhaps is generally the best solution, is to provide for some suitable passage through or under every house or between every two houses. This may be done by a narrow archway on the level of the street, or on the grade of the cellar floor (reached by steps). There are some objections to this method, but they can be overcome to a considerable extent by careful planning. If each house is to be provided with its individual arrangement for service, it can best be done by a door from the front of the house leading directly into the cellar.

The merits of these different methods depend to a large extent upon their cost, the architecture of the houses, and the way in which the service arrangements are worked out. In fairness to the back alley, it should be stated that when properly laid out and constructed and publicly maintained, it has advantages which the other methods do not possess. In the first place it permits of the collection of wastes from the rear of houses instead of on the front streets, where they are for a short time more or less unsightly, and secondly, it provides a convenient and in some instances an appropriate location for underground pipes, sewer, water, etc., and for poles and overhead wires. We may soon have to add a third — viz., access to a private garage on the rear of the lot. These advantages, however, are usually more than out-weighed by the disadvantages, especially with the low public and private standards that now prevail in many industrial villages and the almost insuperable difficulties of proper maintenance.

Sizes and Shapes of Blocks and Lots

The size, shape and proportion of blocks are of great importance, especially from the economic point of view, and are controlled, of course, mainly by the location of streets and roads. Some variety in the shape and size of blocks is desirable, and often economic. It is preferable, however, to keep them fairly near to a rectangular shape, avoiding sharp angles. The depth of the block intended to house industrial workers should seldom be more than 200 feet, and the maximum desirable length is between 500 and 800 feet.

There is a decided advantage in east and west frontages for houses, especially in closely built sections. This applies, however, to northern climates only.

The size, shape and proportion of lots are, of course, dependent largely upon the size, shapes and proportions of blocks. Here again, within limits, variety and differences are desirable, thus supplying different demands. A fair minimum for lot widths would be 15 or 16 feet for group dwellings, 25 to 30 feet for semi-detached dwellings (each unit), and 40 to 50 feet for detached dwellings. The depth of lots in these classes should range from about 80 to 100 feet. There is a direct relation between size of lots and the utilization of a portion of the interior of blocks for playgrounds, allotment gardens or neighborhood parks. This relation should be kept in mind in any attempt to estimate the justification or value of one or the other. If the layout provides for individual backyards or gardens, interior block open spaces are obviously more difficult to obtain. On the other hand, if the individual lots are shallow, merely a drying yard, there is a better opportunity to provide for a common playground or garden in the middle of the block.

House Types

No one house or method should be endorsed as the only one, although the emphasis should be put upon the single family, self-contained, detached house or cottage, as on the whole most desirable. The choice of the house type depends upon (a) land values; (b) wages; (c) custom; (d) demand; (e) whether houses are for rent or sale.

The types recommended should have some advantages of house construction or of lower land cost, and take into account the fact that different people have different tastes and preferences, as well as different needs in housing, as in other matters. What is best depends upon local conditions and circumstances and cost. *The group or row house, however, should not be more than two rooms deep.* This is of fundamental importance.

The schedule given below shows the relation of the cost of lots and houses to wages and rent. Workingmen in normal times receive approximately from $15 or $16 to $25 or $30 a week. It is usually accepted that they can afford to pay from one-fifth to one-fourth their wages in rent, or, as it is often stated, a week's wages for a month's rent. If they receive, say, $15 a week, and we assume that they can afford to pay $15 a month rent, the total investment in house and lot should not exceed $2,000. This allows about $400 for an improved lot (say, 40 ft. in width) and $1,600 for the building. If regular savings are to be made toward the purchase of the house, the wages should average higher than the figure quoted. The investment would thus yield annually the usual 10 per cent gross or from 5 per cent to 6 per cent net, according to local conditions, taxes, cost of upkeep, etc. The same comparisons can be made with the other classes shown on the schedule, receiving wages of $20, $25, or $30 a week or intermediate amounts.

This schedule is based upon a minimum annual wage of $800. Bulletin No. 76, Treasury Department, United States Public Health Service, makes the following statement:

> "Several studies by various authorities on actual conditions in workingmen's families tend to agree very closely that unless a family of the average size (father, mother, and three dependent children) has an annual income of $800 or more, it cannot maintain a healthful standard. This conclusion is apparently confirmed by statistics of expenditures in workingmen's families which show that the point of adequate subsistence is not reached until the family income is approximately $800 or more."

General Schedule Showing Relation of the Cost of Lots and Houses to Wages, Rent, and Savings

Lot — Improved	$400.	$500.	$600.	$700.
House	1600.	2000.	2400.	2800.
Total House and Lot	2000.	2500.	3000.	3500.
Wages				
Per week	$15.	$20.	$25.	$30.
Per year	800.	1040.	1300.	1560.
Rent				
Per month	15.	20.	25.	30.

MINIMUM LOT AND HOUSE FOR NORMAL FAMILY

Minimum Lot.

Terrace row (not more than two rooms deep)	15′-16′ wide	80′-100′ deep
Semi-detached (each lot)	30′-40′ wide	90′-100′ deep
Detached	40′-50′ wide	100′-125′ deep

Minimum House.

4 rooms, Parlor, Kitchen, two Bedrooms and Bath.

5 rooms preferred, Parlor, Kitchen, three Bedrooms and Bath; three bedrooms allow for separate rooms for older children of different sexes.

Houses per Acre

It is not practicable to fix any absolute limit to the number of houses to the acre. Very much depends upon the sizes of the houses and their arrangement, as well as upon the economic necessity when land values are high. Furthermore, it is not easy to weigh the disadvantages that might arise from enlarging cities to such an extent as would give a much lower number of houses to the acre. One may safely say, however, that the desirable maximum would be between ten and twelve houses to the gross acre. This figure has been fairly well tested in the garden villages of England, as well as in this country. For houses built in rows or short groups, the density, even where land values are extraordinarily high, should seldom exceed eighteen houses to the gross acre. A reasonable density for detached houses is from five to seven houses to the gross acre.

Cost of Development

While figures as to costs are always unsatisfactory, varying as they do in different parts of the country and at different times, and with different topographical conditions, still the following statement of the actual costs for development per acre, taken from the figures of a development at Akron, Ohio, in September, 1916, may prove helpful as affording some approach to what may be considered a normal standard.

Cost per Acre for Development

	Per Lineal Foot	House Connections
Sewer	$ .50	$28.00
Water	1.25	18.00
Sidewalk	.60	
Rough grading streets and curbing	1.65	
	$4.00	$46.00
TERRACE ROW TYPE.		Per Acre
House on 15 ft. lot at $4.00	60.00	
House connections	46.00	
16 Houses per gross acre at	$106.00	$1,696.00
DETACHED HOUSE TYPE.		
House on 40 ft. lot at $4.00	$160.00	
House connections	46.00	
6 Houses per gross acre at	$206.00	$1,236.00

(Depth of lot assumed to be about 100 ft.)

Building Districts and Development

Districting or zoning is, after all, little more than an extension and a wider application by public authorities of the principle of restrictions. This principle is well understood, and has long been used by the private owners of property, and to some extent by the public authorities. It is a principle that is particularly well understood in the United States by real estate operators. The restrictions placed upon the purchaser in the conveyance of property often include a long list of the kinds of business which are classified as nuisances, such as keeping chickens, pigs or cows, and which may not be established or maintained upon the property. These restrictions also include regulation as to stables and garages, fences and walls, setback of buildings from the street and from lot lines, the minimum cost of buildings, easements and rights of way for public utilities, and in some cases even the approval of house plans and specifications. The point of view with regard to these restrictions is indicated by the fact that the real estate operator now often refers to them as "safeguards."

It has become evident, however, that we cannot depend upon private restrictions in deeds imposed by the land owner. At best his action is applied only to very limited areas, and often when most public spirited, is not always intelligent. His chief motive must be profit. He cannot be expected to have consistent and permanent concern for the results of his methods upon the future occupants of the property, nor upon the general public. Furthermore, no matter how large his holdings, he has only the legal power of a private citizen.

A Front Set-back

One of the most approved forms of restrictions is that of a building line establishing the set-back for the buildings from the street. In some places this set-back is considered a part of the street and publicly owned. In others it is restricted private property. The width of this strip ranges from ten to twenty-five feet, or more. If too deep, it would be wasteful and out of proportion to the size of the lot. It would also make service connections with the house expensive. It appears to be generally agreed that this building set-back should not be uniform through the property, but should vary in relation to the width of the streets and the depth of lots. Sometimes it should vary on the frontage of a single block, giving different set-back to the houses, and increasing the interest of the street scene.

Space Between Adjacent Buildings

There is fully as much reason if not more for establishing minimum distances between buildings, on the side line, as on the street. A good standard is sixteen or twenty feet between buildings,— that is, an average of eight or ten feet from the building to the side line. Light, air and ventilation of homes depend more upon this restriction than upon any other. Minimum distance between the backs of houses should be 50 feet.

Zoning

The zoning of a new town or village is not a very difficult matter, at least not for one who has skill and experience in town planning. The topographical character of different parts of a tract often determines which areas are best for various purposes,— for example, for factories, for stores and shops, for open spaces, and for the different grades or classes of homes. Moreover, the shop and store zone and the parks can almost always be so placed, and their boundaries so arranged as to make them serve as buffer zones between the residence districts and the factories or other outlying unrestricted or uncontrolled areas. In this way values are increased and the homes of the people are protected from noise and dust and unpleasant outlooks, and thus rendered more agreeable for domestic life.

Use of Property for Lots, Streets, etc.

An important test of success in the laying out of an industrial village is the percentage of property used for various purposes,— lots, semi-public properties, public properties, and streets. The normal ratio for lots is about 58 per cent; for streets 25 per cent; for open spaces, etc., 15 per cent. Examples showing the variations due to one cause or another are given in the following table and diagram. For economic reasons at least 50 per cent should usually be used for lots, and not more than 25 per cent for streets, unless some of the main thoroughfares of the city run through the tract.

Percentage of Property for Various Purposes

	Percentage		
	Lots	Streets	Parks and Other Areas
Union Park Gardens, Wilmington, Del.	54.5	31.1	14.5
Loveland Farms, Youngstown, Ohio	73.	21.8	5.2
Kistler Industrial Village, Kistler, Pa.	40.7	29.6	29.7
Neponset Garden Village, East Walpole, Mass.	62.5	19.5	18.
Allwood, N. J.	66.4	25.	8.6
Overlook Colony, Claymont, Del.	57.	24.	19.
Green Acres, Waterbury, Conn.	55.	29.	16.
Averages	58.4	25.7	15.8

Summary of Steps

The steps for a complete community development may be summarized as follows:

1. An accurate topographical survey at scale of about 50 feet to the inch with contours at intervals of from one to five feet, according to circumstances, is the fundamental basis of the plans.

2. The reservation of public lands playgrounds, open spaces, parks, etc. An important part of such reservation would usually be the natural features of the property.

3. The subdivision of the area into blocks of well dimensioned lots, according to requirements.

4. The setting aside of appropriate sites for schools and other public or semi-public buildings, and for community centers, making proper provision for moving pictures and other popular amusements.

5. A system of streets with sidewalks, grass margins, planting strips, etc., differentiated into main and minor streets.

6. An electric car or motor bus service approaching within a quarter of a mile of every house lot; preferably, electric car lines should not run on residential streets.

7. A complete system of sanitary and storm water sewers; water, gas, electric light and telephone prearranged. If financially possible, wires should be placed underground.

8. The establishment of zones and of building lines and other suitable restrictions throughout the property.

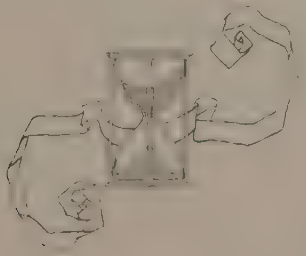
9. The reasonable regulation and control of the location of buildings and of their architecture.

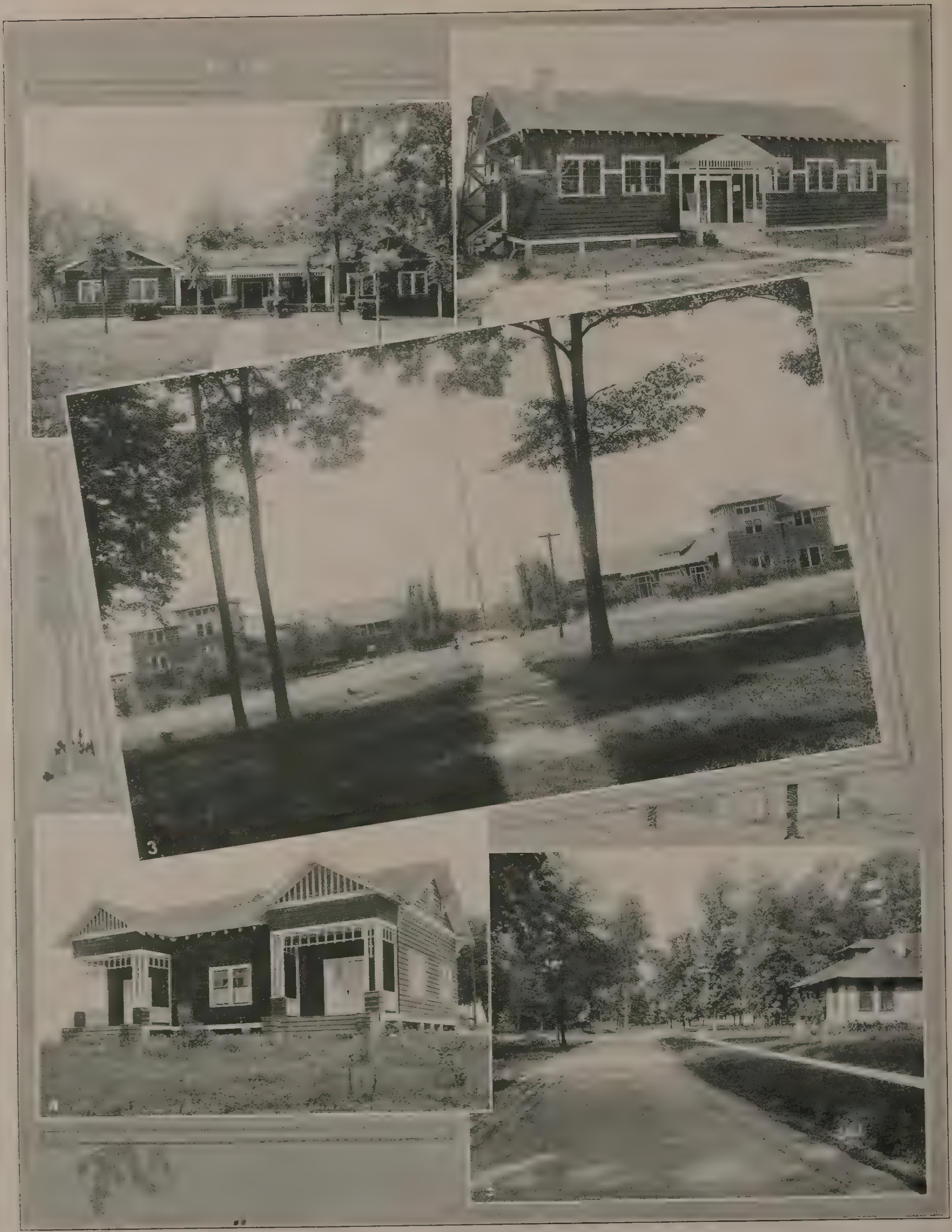
10. The detail planning for all roads, parks, street intersections; and if possible, also, of the private property.

Management and Upkeep

No matter how much wisdom and skill are shown in the selection of the land, in the laying out of the tract, in the adoption of house types, in the zoning of the village, etc., *unless adequate provision is made for the proper, permanent maintenance of the property, the whole development is in danger of ultimate failure.* Restrictions will help decidedly, but even then proper maintenance and upkeep are essential. Such maintenance is obviously a much simpler problem when the property is held in a single ownership.

The industrial town or village of tomorrow will make better provision for an orderly development; it will provide for more convenient circulation by means of streets and roads; it will exercise a larger measure of official control in so vital a subject as zoning; better standards of public work will increasingly prevail. Play and recreation and amusement will be better understood and provided for, and all the problems of preserving and enhancing child life will have more attention. Maintenance will not be left to chance. The characteristic American home of today, as we see it in almost any industrial town or village is not, we can be sure, to be the characteristic American home of the future.





Civic Center, Kaulton, Ala., with the General Store on the Left and Y. M. C. A. and Office Building on the Right, Kaulton Inn is Shown at the Upper Left Corner of Page, Other Buildings are the Negro Y. M. C. A. and One of Kaulton's Schools

KAULTON, ALABAMA

A SOUTHERN PINE MANUFACTURING TOWN BUILT ALONG MODEL LINES

"*A Proprietary Village Scientifically Planned to Attain Definite Objectives*" . . . *as described by*

GEORGE H. MILLER
Industrial Town Planner, Boston, Mass.

WHEN the Kaul Lumber Company faced the problem of locating and building a new plant for sawing the timber of its extensive tracts, it not only made a thorough study of the geographical and topographical suitability of different locations, but also went deeply into a study of the town problem and the advantages that might be gained in the matter of housing employees.

This subject proved to be one of widespread importance. By looking into the matter it was brought out that some investigators had shown up serious weaknesses in social conditions related to industry; had shown that in trying times the standard of employees' housing had been a reflection on certain industrial concerns; that whole industries had been injured in legislation owing to the matter of housing; that cities were perfecting housing laws and were getting greater power from the states for that purpose, and had shown that a movement for better housing of workmen was worldwide.

The housing problem was found to be more than the scattering of some shacks as the company, like many others, had done in the past; the problem was found to be one of town planning, and that most of the principles of city planning applied, although in a miniature way. Therefore just as the company would study various arrangements and details of its plant, employ skilled designers to determine exactly what it wished accomplished, would make plans and do all figuring on paper before one cent would be actually expended on construction, so also with housing it employed the services of those who had made a life study of the work, determining the advantages to be gained and how best to gain them.

Attracting the Best Class of Labor

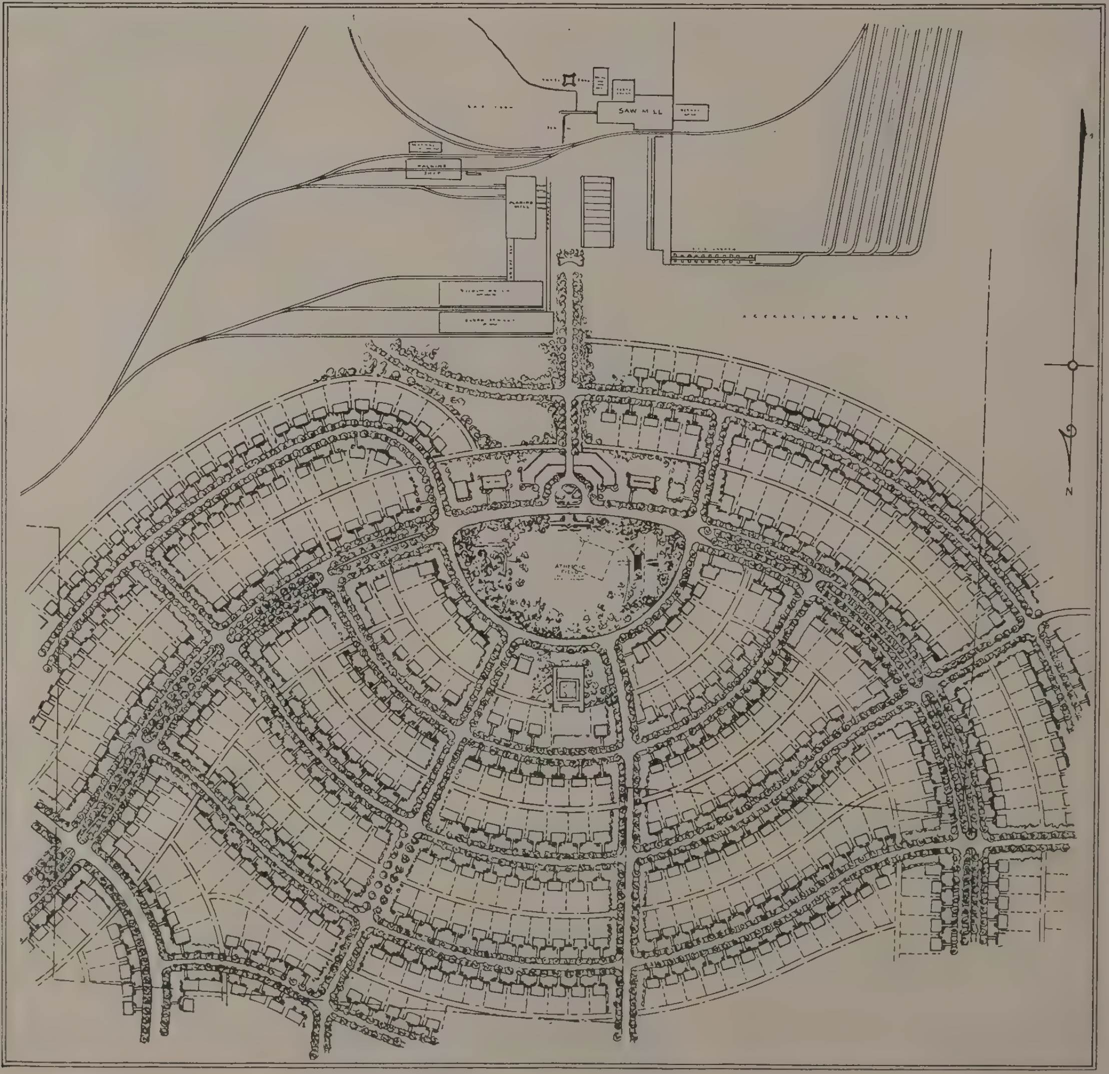
It is true that in a community such as a lumber manufacturing village, a textile mill or mining town, labor may be shifting. Nevertheless, multitudes of human beings spend a large number of their days in such towns, and there they go through their lives of work, play, love and worship, naturally according to the facilities offered. The old fallacy is that labor does not appreciate desirable conditions, and yet that is a point. There is a world-wide supply of both good labor and worthless labor, but a concern like the Kaul Lumber Company does not want the poor labor — it wants the kind of labor that appreciates the desirable conditions which it has to offer in its town, letting the poor labor go to employers who may have less faith in workmen. The Kaul Lumber Company is providing conditions that will attract the kind of labor that appreciates desirable conditions, and only that kind will be accepted for work in its lumber plant.

Maintaining Labor's Producing Power

Those familiar with the subject of scientific management as applied to shop, mill, mine or yard, all operating ends of an industry, know that the principles of scientific management, whether or not under that name, have a large bearing on success in industrial production.

These principles consider working conditions, consider the workman at work, while he is within the mill gate, and for the purpose of making it possible for him to deliver the greatest percentage of his potential ability in work. But heretofore scientific management has not given sufficient attention to the preservation or creation of fitness of a workman for work in those non-working hours when there is being determined the potential ability of which he is to give a high or low percentage in work. Therefore it is plain that scientific planning of industrial towns becomes an important and essential complement to scientific management in industrial operations. It is a fact that the efficiency of labor in one town has been increased 25 per cent in a few months.

The process means not only attracting the most desirable labor, but also maintaining and increasing the efficiency of that labor by providing conditions that will contribute toward the upbuilding of the required kind of strength, skill and will in the workman that will enable him to give more to his employer and thus get more for himself. Every feature in such a town is designed to have some constructive influence for specifically benefiting the workman for his work, and he gets nothing he does not pay for,



Plot Plan, Kaulton, Ala.

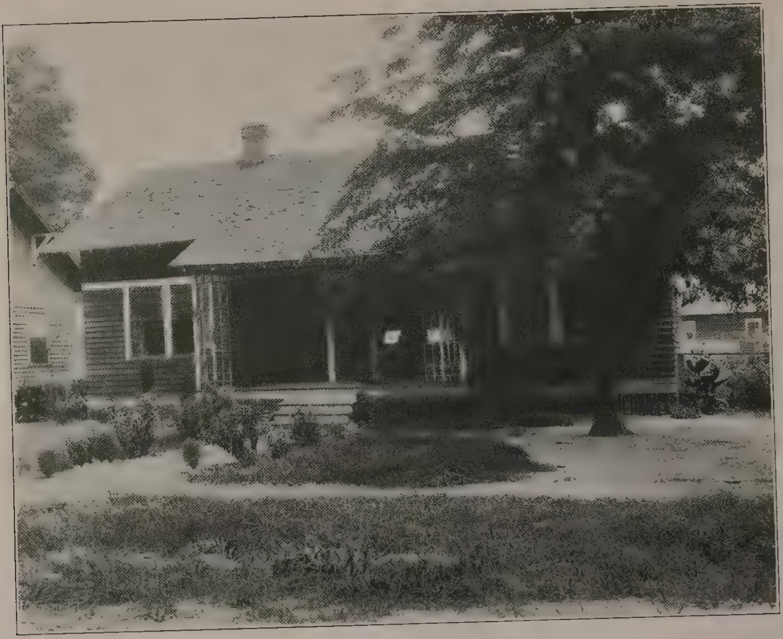
Type 700-W. House for Superintendent

thus eliminating the element of paternalism. This does not mean that desirable conditions are being created with blind extravagance; the fact is that the subject of what to provide and what not to provide and the reasons why are reduced to a science. Too often in short periods the cost of impaired efficiency of workmen, due, among many other things to the effects of malaria, hook-worm, or other diseases, are very much greater than the cost of preventives, and therefore it becomes a good investment to assure that the sources of infection will be known, that there be screens from disease-carrying flies, that mosquito-breeding spots be drained, that unpolluted water be provided, and other improvements be made.

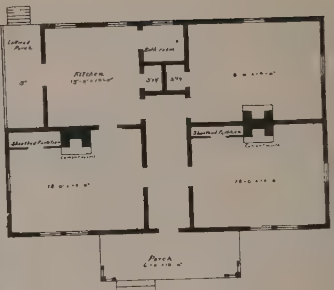
Men must and will live, they will work, play, love and worship. How they perform the latter three functions of life will determine largely the percentage of their potential ability for work to take into the operating plant with them, and will be determined largely by what the physical town features permit and invite. True it is that administrative means are also necessary, yet to gain results a physical foundation is essential. The most meagre industrial town can afford and can be designed to maintain and uphold the strength, skill and will of the workman for his work, maintain and upbuild efficiency in industrial production, and that is another objective this town was designed to attain.

Increment On Land Values

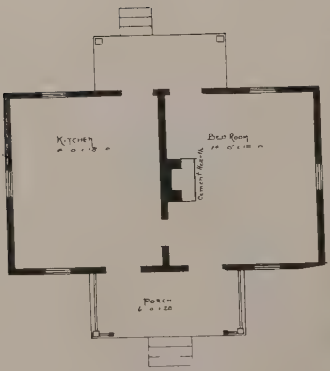
Thorough study in the designing of the town of the Kaul Lumber Company was accepted as no more than a business precaution, to get up-to-date information about all phases of modern town building before the work was undertaken. The consequences are that from a real estate point of view the plans provide for a character and arrangement of its own features and a tie-ing-in with the existing highways, the preferred subdivision of adjacent tracts, and the plan of Tuscaloosa, of which Kaulton is a suburb, in such a way that now and in the future best land values will be realized. The scheme also provides for expansion, thus taking care of a possible increase in the number of employees in the Kaul mill or the employees of by-product mills, which no doubt through time will develop and for which strategic sites and shipping facilities are laid down. In fact, the lumber company has at present built only one hundred



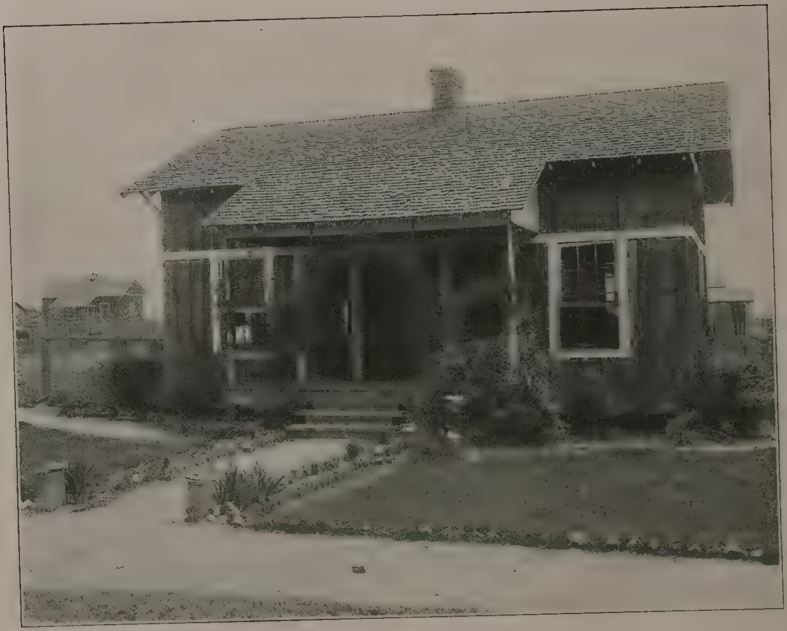
Type 400-W. Four-room House for White Employees



Floor Plan



FIRST·FLOOR·PLAN·



Type 200-C. Two-room House for Negro Employees

Kaulton, Alabama

to one hundred and twenty-five houses, and yet provision is made for many times that number. This scheme has been so worked out that already the increment on land values is an item of considerable importance, and it was practically established the moment the plans were laid down. And that was another objective the town was designed to attain.

The town is located as near the extensive lumber plant as seemed advantageous for fire protection. The axis of the town is perpendicular to the long lines of the mill buildings, and on it is the 80-foot wide mill entrance street along which, looking toward the mill, will be seen an arbor seat under shade trees framing the base of a 125-foot water tower. From this road which leads to the civic center there is a separate passage to the negro quarters.

Is Pleasant and Inviting

A distinctive scheme of planting accents the architectural rigidity of this emphatically formal straight line on which the whole town scheme balances, frames the view to the mill buildings and makes the approach pleasant and inviting. The commissary, club house, bath and office buildings, located nearest to the mill with which they are more or less associated, and within easy access to a road to the negro quarters, take an octagonal form at the end of the mill entrance road, and, together with a church, a school and a hotel, are designed as a unit and form the civic group. Pergola extensions of the two main buildings are to make a shelter gateway, from which the direction of travel follows two drives about a semi-circular open space, thus forming a public square at a slight elevation overlooking an open area reserved for possible park and playground purposes.

This central open area divides itself into three parts. One is the great central open athletic field around which paths lead from the mill entrance and all streets; the splendid existing tree growth which has been saved, together with the tree and shrub masses proposed, will form irregular edges of soft foliage, while the walk encircling the field can also be used as a running track and therefore is kept in front of the site for a grandstand on a sloping hillside.

The other two divisions of the central park are: first, a portion in which attractively curving paths lead through ornamental planting which shuts out the road on one side and on the other surrounds an open space to be used for varied games by adults; second, a children's playground near schoolhouse location, in which a shelter is provided where mothers may sit in the shade and watch children playing in the wading pool below or using playground apparatus in adjacent open spaces. This area is also surrounded by ornamental plantations, through which lead winding park paths.

Street Scene, Negro Quarters, Kaulton

From this park, wide highways, which eventually may become boulevards of the city of Tuscaloosa, extend by long sweeping curves on one side in a diagonal direction toward Tuscaloosa center, on the other through a beautiful woodland hollow to the railroad station, thus extending a parkway throughout the length of the town by two wings of the central park area.

Maintenance Reduced to Minimum

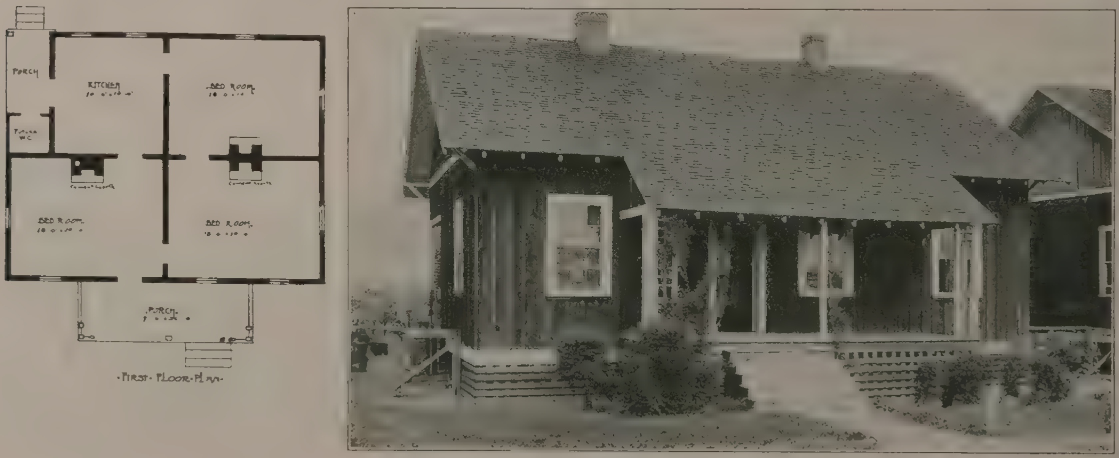
Street widths, width of walks and width of roadways are designed at each point to carry the amount of traffic which will traverse that point and no more, and thus with the application of certain other ideas the maintenance is reduced to the minimum. An extensive scheme of tree and shrub planting has been worked out for all streets and fronts of cottages, these to furnish a revitalizing shade and sheets of flower bloom, to direct traffic and to hold sliding soils. Building lines are fixed, and height of floors, and the lot widths, lot depths and lot features are determined to most easily accommodate the use to be desired and to discourage other use. The cottage designs are an application of the California bungalow type, with roofs sloping toward the street. In these is space for halls, closets, and a future bathroom. Vine trellises shut off the view from street into rooms, and flower boxes, taking the place of porch rails, accommodate plants which are always present but which are too often seen in hanging tin cans. In a lumber town the material of construction is naturally wood, which in the different cottages has many diversifications and, purposely being unplaned, take the subdued tones of different color stains selected to give individuality to each house and yet conform to a pleasing town scheme. The equal spacing of the cottages is very pleasing in appearance when seen in a perspective on streets following attractive curves, and while the esthetic has been a consideration secondary to the economic and utilitarian, yet it will be valuable in enlisting the civic spirit and home pride of the workmen.

There are no steps lost in walking through Kaulton, and no useless space. Conditions there are convenient, safe and sanitary; the town is pleasing in appearance, easy of upkeep and permitting of expansion. And all these were objectives the town was designed to attain.

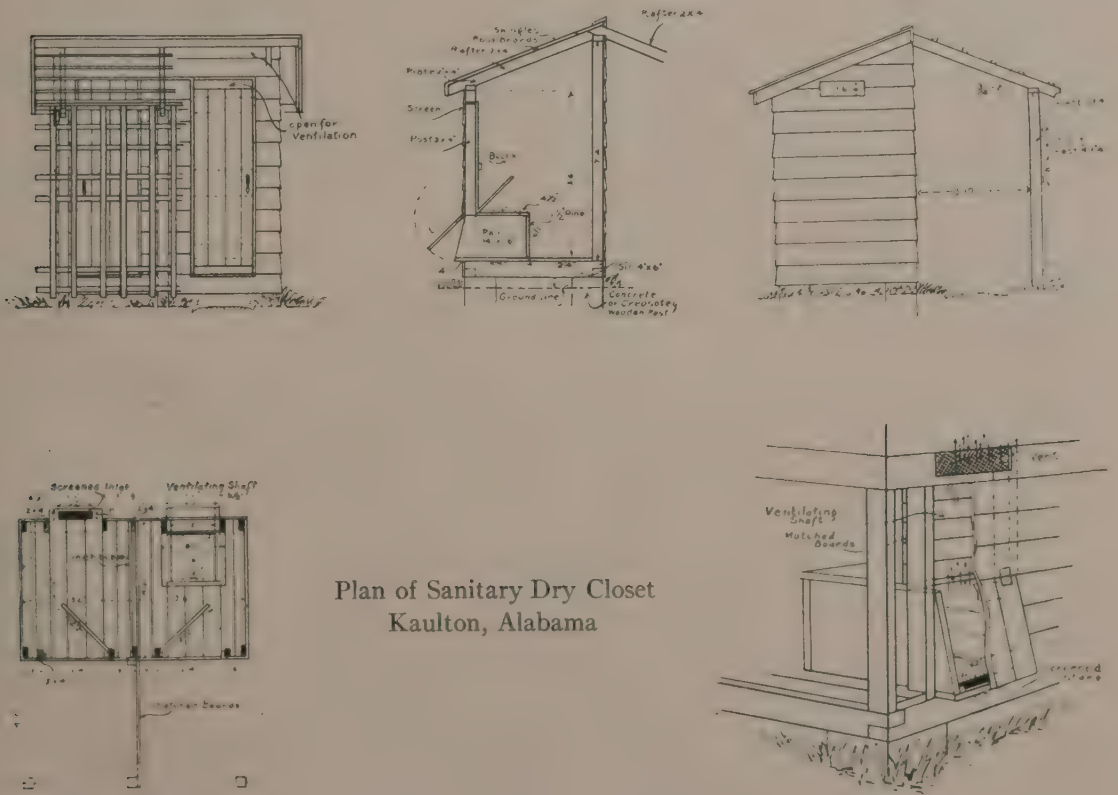
It has been pointed out that a tendency upon the part of Industrial concerns to consider these matters deserves public commendation and public consideration that is valuable in effect on legislation and the selling of goods. These objectives also were defined in advance as advantageous and to be attained in the designing of the town.

Reduced Cost of Construction

Now measuring the cost and value of proper planning, the town plan properly provides for



Type 400-C. Four-room House for Negro Labor most advanced conditions, such as drainage and sanitary sewers, water, lights, street car lines, park and parkway developments, a civic center, etc., but it is intended that these features shall be carried out only as conditions demand and as the employees co-operate. They will not all be carried out at once, but the value of the plan is in knowing what not to do, what to do, how to do it, and the reasons why; in that everything that is done is a contribution toward an eventual ideal unified scheme; in that nothing will have to be undone, that there will be a minimum of waste. It is enough to say that the cost of the attention given to planning has easily been saved even in the first work carried out. Streets fit the topography, and were inexpensive to grade. The street scheme takes a fan shape, and the lines follow curves, and yet the number of lots gained is greater than would have been the number of lots in an unattractive rectilinear scheme which would have required little experience to plan to meet at least the conditions. The houses fit the topography and will be inexpensive to build. The cottage designs are more roomy and more attractive than any so far built in that section, and yet the cost is lower. One feature is a hotel designed along California Spanish lines, having a wide front terrace and pergola, liberal living and dining rooms, corridors, bathrooms and closets, and a very attractive interior patio. The saving in cost to build this hotel following desirable lines compared with an estimate of cost to have built the customary carpenteresque type was more than the amount of the town planner's fee for laying out the whole town. The cost of construction has been less than in the usual town which develops along haphazard lines, and yet at this lesser cost a better product has been gained.



Plan of Sanitary Dry Closet
Kaulton, Alabama

KAULTON FROM AN INVESTMENT STANDPOINT

By JOHN L. KAUL

President Kaul Lumber Company

WE have had it in mind to create an attractive community which would aid us in securing and holding the most efficient and desirable type of labor, rather than to make a dividend-paying proposition of our operatives' houses. With this in view, we have established our rents on a basis of $2.00 per room for the houses for white employees, and $1.50 per room for the houses for colored employees. In addition, a certain charge per month is made for rental for facilities furnished in the way of buildings of various kinds, such as stables, garages, etc. This charge averages 60c per month for each place. The white three-room houses would, therefore, rent for $6.60 per month; the four-room houses for $8.60; five-room houses for $10.60, etc. The houses for colored employees will run from about $3.50 for the two-room type to about $6.75 for the four-room type.

After charging against rental account the cost of maintenance, interest, taxes and depreciation, there remains nothing in the way of an earning. In fact, in this period of high costs there is undoubtedly a loss incurred in connection with our operatives' houses.

We do not, however, intend to furnish facilities of this character at less than cost as part compensation for labor performed, as we believe this is an entirely wrong principle, and defeats its own object.

Our operatives' houses are not for sale, but we have set aside certain property which has been divided into building lots in an attractive manner and have provided facilities which permit of our employees building homes for themselves on terms which can easily be met. This has resulted in quite a number of them buying places.

Our tenants are encouraged by means of contests and otherwise to keep their places in first-class condition in every respect, and in beautifying them by means of grass plots, flower gardens, etc.

We have made it a point to provide large enough lots to give opportunity for the cultivation of vegetable gardens, and by means of contests with substantial prizes, have encouraged the making of gardens to an extent that has been very well worth while. All of this seems to make our little town attractive to the better class of saw mill labor, and encourages the community spirit and brings to us a direct benefit that comes through contentment and efficiency which could not be purchased with money.

HOW SHALL WE PROVIDE GOOD HOUSES FOR ALL?

By CHARLES HARRIS WHITAKER

Editor, Journal of the American Institute of Architects

THE war was like a pitiless searchlight, the piercing rays of which could not be turned off. It searched out every nook and cranny of our national life and we could not do as we were used to doing in peace and quietly shut our eyes. We had to look wherever it shone for we knew that, in the test we had to meet, everything depended on the thoroughness with which we discovered our weaknesses and corrected them.

Thus the light of war is something for which we have to be grateful. It pointed the finger of warning and the only thing to fear is that with its end, we shall forget again and begin to close our eyes. Also, it is true that millions of people who saw our weak spots under the glare of war were guilty of thinking that they were war weaknesses only, and that they were due to the unusual stress and strain of war. Whereas the fact is that the war merely converted certain chronic conditions into acute attacks.

Of these the so-called Housing Problem is one. To most people in the United States it appeared both as a new problem and a war problem. It was a war problem as we found to our cost and our delay, but it is in no sense a new problem. It has been discussed in this country for some time and in other lands it has been growing into one of the most serious of national menaces for many years.

What "Housing" Really Portends

Let us scan the word "housing" closely and see what it really portends. In the light of war we shall see that the great shortage of houses in industrial centers was a cause of delay in the production of every kind of war necessity. The Government recognized this shortage and appropriated some two hundred millions of dollars to correct it. If the war had continued that sum would undoubtedly have been considerably increased, but the word "housing" has come to have a much larger significance. Literally it stands for one of the gravest defects in our national life, for it means that, due to a variety of causes, we have reached a condition where we do not know how to provide good houses for a vast and increasing multitude of our wage earners.

This is literally true, mark it well, for the problems to be solved are not mere questions of architecture, or engineering, or sanitation. They are economic problems involving our national mode of life, both social and economic; they have arrived almost unsuspected,—one might almost say, still unknown to a large number.

Under the economic and industrial system which we borrowed in a lump from Europe we were suddenly startled by learning, as a result of the war, that we had followed precisely the same path down which the nations of Europe have been plunging for the last century. There are no slums and congested areas in Europe which cannot be matched or even surpassed in the United States. New York can rival London, Paris, or even Constantinople, in this respect. The cotton manufacturing towns of New England are in no sense behind Lancashire in the degree of their squalor and overcrowding. Pittsburgh, and our steel and iron mining and manufacturing towns in general are not surpassed in the degree of their inhuman living conditions by Sheffield, or the Westphalian district, or the French and Belgian districts of similar character. Look where one will, the United States is seen to have repeated, as though incapable of profiting from the example of others, the same cycles of slum and congestion, filth and squalor, which have marked the progress of all nations in their passionate struggle for industrial supremacy.

A Problem We Must Face

Has the time not come, then, when it is pertinent for us to ask, how it is that in a democracy, dedicated to equal opportunity and the right to life and liberty and the pursuit of happiness, we have not been able to avoid the disease which has raged in all the major European nations since Watts made it possible to centralize industry. We do not like, as a nation, to face these problems. We are a little proud of our progress, one fears, and as a rule are quite unwilling to believe that we have allowed these things to come to pass, or that we have done no better in the management of our industrial progress than other nations have done. But the first essential in understanding any problem is to be willing to face it unreservedly and without any false pride or sentiment, and to seek the facts, no matter how unpleasant they may be, realizing that we can in no way prescribe an adequate remedy until we are sure of the entire nature of the disease we wish to cure.

The history of the so-called "housing" question is not difficult to come at or understand. Almost every civilized nation has, at one time or another, found it necessary to bestow its attention upon the problem. Gradually there was forced home the conviction that under private initiative the question of housing had got itself into such a muddle that only the nation could extricate it and start it aright. This has been true of many other questions, and will eventually be true of all economic questions, no doubt, for men do have a way of muddling the national welfare in seeking their own ends, and nations then do have to interfere as a measure of self-preservation. We have seen the necessity of this in war, on an unparalleled scale. The Government gradually assumed control of every activity of life, since it was only by so doing that it could organize and mobilize the resources of the nation.

But if we pursue the analogy a little further, we see that the test applied in the war was unprecedented simply because the war was unprecedented in the demands which it made upon organized effort. Yet is there any reason to doubt that the demands of the New Peace will be equally unprecendented and that the Government will more and more be drawn into this work of organizing for the common good? What is there to fear in it? Why should we cry out in such dismay when it is proposed to have the Government build houses? The answer is that there are many who feel that if the Government should set a human standard for living conditions, their investment in slum property would be seriously impaired. This being true, we ought seriously to ask ourselves whether the purpose of Government is to protect the rentals from, and in, an inordinately profitable slum property, or constantly to seek ways and means of making the slum impossible. Until we first determine, fearlessly and unselfishly, what the function of the Government is in this, we cannot get very far in trying to find a remedy for the disease of the slum, and the tax it takes on the child and the mother and the manhood of the Nation.

If we are not ready to apply the same principles in Peace which we have applied in War and under which we recognized that the quality of our manhood was the deciding factor which would carry us through to victory, then it is idle to discuss the housing problem. But if we are willing to carry those principles over from War into Peace and thus admit that the duty of Government is to insure decent living conditions for all workers, then we are ready to set about the task of finding out what is the best thing to be done toward bringing about such an end. This should not be taken to imply an argument for Governmental interference in the housing question in peace. The question should be left open, although it must be obvious that some sort of Governmental regulation will undoubtedly be necessary.

The Land a Vital Factor

Land is at once the most difficult and the most objectionable factor for discussion which can be found in our economic life. It is a subject which is generally slurred over or dismissed by most writers on housing with the remark that the manufacturer should seek low-priced land for his venture in workmen's houses. Seldom, in any work on the subject, is the question treated at length. Most writers are unwilling to address themselves to so unpopular a subject, and yet it lies at the bottom of the economic path over which we must travel in search of a solution of the housing problem. If we look at the experience of England, and of Germany, and of New Zealand and of Australia, we shall see that all of them, in their efforts to solve this great and vital national difficulty have come at last to recognize that unless they could find an adequate method of treating land developments and land values, all of their millions spent in housing were of little avail. England suffered under a system of landlordism which has slowly been grinding her to death. Not only was it practically impossible to buy land in fee in England, but enormous areas were wilfully kept out of use by titled owners who desired to preserve their ancient solitude undisturbed. No other country suffered so acutely in this respect, although all of the European nations have been under heavy land pressure for some time. Yet the strange thing is that even in the United States, with an enormous unoccupied land area, we, too, have reached a degree of absentee landlordism with which we must reckon. The figures are given in our last census, and they are such a challenge to our future that it would be criminal to ignore them.

The land is, then, a vital factor in the building of the house and the creation of the home. It is vital in its character and location, of course, but we shall discuss it only as it affects the cost. The higher the price of the land the less money can be spent on the house, for the fixed rental or sale value must be preserved. This has a tendency to rise all the time, as we shall see later, but it is the prevailing rental rate which determines the financial basis of any house-building operation at the time. In getting at the influence of land cost, let us assume for a moment, that a public spirited citizen wishes to start a good housing program either as a new community or as an adjunct to an existing one. Let us say that he buys a piece of property, lays it out generously with some garden space for each house (whether built singly or in a group), and that his land value charge per house is $200.00. No matter how large the area he may buy, the fact remains that when he wishes to extend his venture beyond the land which he owns, he finds that all of his neighbors have marked up the value of their land solely on account of the extra desirability his building operations have given it. Thus when he has to buy more land he cannot get his land value charge per house down to two hundred dollars. The next time he builds the process of contracting the size of the lot and the size of the house begins. This is the simplest example of the forces that ultimately end by condemning men to the tenement, the constantly shrinking in-size tenement, with the inevitable overcrowding and health impairment. In some cases the process is rapid; in others it is slow; in all cases it is the same. A new industrial town, or an old one upon which a large industry suddenly descends, is sure to be at once condemned to the same degree of overcrowding that now pervades our older and larger communities almost without exception.

This problem is a hard one to face. Few wish to face it. The general theory is that it is an inescapable result of life and that it will in some manner take care of itself. No more striking arraignment of our national intelligence could be found than our unwillingness even to permit a discussion of this question generally. No one will talk about it, except here and there. In polite society the subject is never mentioned, although one may discuss the slum and its attendant evils without being thought too human. But if we are still unwilling to study the land question with an open mind let us be prepared to go on with the same old evils. to continue to depend for good houses on the speculative builder who is himself a victim of the price of land (getting cheap, flimsy, ugly, disease-breeding houses for our pains) and to sit by and watch the older nations forge ahead of us, for they have begun to learn their lesson and to profit from their experience. One only needs to study England's method of taking land for the building of her war-time* communities for munition workers to see how far she has gone, while to study the simple method involved by New Zealand† and Australia is to learn how the newer and smaller countries have far outdistanced the United States. Their solutions may not be ours, but their courage in facing their problem is a thing which may well constitute a silent reproach to us as a Nation.

Wages and Rentals

What a workman, or any one else for that matter, can pay out in rent or in the purchase of a house, depends on what he receives in wages or salary. It is generally customary to use the average of wages in a community as a base for determining the cost of the house to be built for sale or for rent. This seems a common-sense way of looking at the matter, but the truth is that we are only just beginning to learn that the amount of a wage in dollars and cents is in no sense a fixed base. It is the purchasing power of the wage which alone counts, and we have seen this purchasing power slowly decline during the last two or three decades. The workers who struggle for a higher wage are never able to do more than win an advance which is soon eaten up by the steadily declining purchasing power of the higher wage which they win.

In war, we have seen the profiteering in rents follow relentlessly the higher wage of the war workers. No figures exist at present to show which finally won out, but the process is only an acute manifestation of the usual peace-time method of house owners. When wages rise, rents invariably rise. Thus there is a slow and almost unperceived process of pyramiding values in a circle. Round and round we go, with the dollar constantly buying a little less. Now unless we are willing to look into this undeniable fact, find the cause, discover the remedy and apply it, we shall still fall short of a real solution of the housing problem.

In finding this secret the workers have an interest as vital as the rest of us. The struggle for higher wages, by itself, produces nothing save a highly stimulated redistribution of labor costs, and in the end nothing is gained. The acute test comes when we attempt to compete in foreign markets or even in our own, with the products of other countries where wages are lower and the purchasing power of money is higher. The usual remedy is to interpose a tariff against foreign products coming into our own country and to sell our own wares at lower prices in competition abroad. But this is only another artificial makeshift and eventually breaks down of its own weight. The tendency the world over, as men advance, is for values to grow towards a common parity, and this tendency can no more be resisted than can we hope to keep all rivers from coming eventually to the same sea. A discussion of this phase of economics seems far removed from the housing problem, and yet it bears inexorably upon the question of wages and their purchasing power. They in their turn, bear with equal rigor, upon the question of housing.

Home Ownership

It is a common theory that every man should own his own home. A man once said to the writer that he thought no one ought to be allowed to vote unless he did own his home, to which the rejoinder was made: "What percentage of the people in New York City or in any other large city could own their homes?"

Home ownership has its advantages and its disadvantages. In general it might be said that the man who owns a home is handicapped to a greater or lesser degree. He is put at a disadvantage when an opportunity presents itself. He has a piece of property on his hands which he will very likely be obliged to sacrifice.

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*Under the Defense of the Realm Act land for housing can be taken at its pre-war value, both at the time of the original building project and in case of future additions.

†In New Zealand the Government not only provides land but lends money for building a house as well, all at a trifling cost to any workman of good character.

Often he cannot afford the loss and so he waives his opportunity.

This is particularly the case with the workman on a wage. Having put his savings into a house, he feels that he must stay with them. Sometimes he might be able to sell his house at no loss or even at a small profit, but generally a loss has to be taken. This disadvantage to the worker is not the only one. Tied down to a house in which he has put his earnings he is more or less bereft of his independence. He hesitates to oppose his employer on a matter of wages or hours. Employers, in seeking to better housing conditions by building houses for sale to their workmen on easy terms, must weigh carefully the likelihood that in periods of disturbance when feeling may run high, they may find themselves in possession of a power which will require very careful handling in order not to be used oppressively and unfairly. The employee who has bought a house on easy terms will be handicapped in contending for what he believes to be his rights by the fear that his savings may be lost. The history of housing experience ought to be very carefully studied by any employer who finds himself confronted with a house shortage, or a serious labor turnover due to bad housing conditions.

A Complicated Question

The question of home ownership therefore becomes complicated with a host of factors which grow out of conditions set up by modern life and industrial practice. On the other hand, many interesting and some successful solutions have been found, either on the co-operative basis or through an agreement by which the employee is protected in his investment.

The question of renting houses comes broadly under these same general conclusions. Some manufacturers will not sell their houses; others will not rent them if they can possibly avoid it. But again, and this cannot be too strongly emphasized, whoever wishes to conduct a housing enterprise which shall yield a thoroughly satisfactory result and act as a strong force in stabilizing labor employment and thus reducing labor turnover, the excessive cost of which is already a high premium exacted of our industrial practice, should carefully consider the local habits and traditions, and then seek the results which have been disclosed by an experience which it is not difficult to apply to any specific problem.

The truth is, of course, that Governments ought to interfere, in some manner, to prevent the disastrous results of building speculation. This destroys building values almost faster than it creates them, in many cases, and makes the ownership of a house a precarious investment for all but a favored few. We need a great stabilizing influence in this class of investment so that a man need not fear to own a home. Other nations have seen this as part of the problem and have tried many experiments. Even in our own country we have seen the Zoning Principle applied to New York City as a method of checking the vast losses produced by unbridled building speculation. Unless we are willing, as a nation, to adopt the principle of developing our country along lines of stability instead of handing it over to be gambled for as over a green cloth, we had best save our time in studying the housing problem. Yet the signs are not wanting that our intelligence is being quickened in this direction. There is a growing national consciousness of our national duty. It has been so stimulated by war that we may hope that it will never again subside to its old state of apathy and that the housing problem will thus be seen in all its deep and far-reaching causes and effects.

The student of the housing question cannot ignore the forms of* co-operative ownership which have been worked out successfully in other countries. Under many of these, the ownership of the home is represented not by title deeds to the property but by shares of stock in a community which is owned in common by those who live in it. The holder of the stock being entitled to the tenancy and use of his house and land as long as he lives and pays his taxes, and being also able to leave the tenancy of the property to his chosen heirs, has all that ownership implies. On the other hand, if he wishes to leave he has no difficulty in disposing of his shares of stock at their full value, and thus he not only avoids any financial sacrifice, but he is saved the long and vexatious delays which generally attend upon the effort to sell a house.

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*See the article on "Copartnership Tenants" in the Journal of the American Institute of Architects for April, 1918.

He also derives an income from his stock through the increase in land value and land rentals as the community grows, and in this manner his cost of living, whether measured in rent, or taxes, or both, is generally smaller than under any other system.

Taxation

Another vexatious factor in the housing question is taxation, although it undoubtedly is a part of the general question of land use and development. As long as idle land is successfully permitted to escape taxation while a heavy tax is levied on every building improvement, it is useless to expect any consistent advance in housing. When owners of tenement property are discouraged from making needed improvements by the knowledge that the tax assessor will use them as a basis of raising valuations and thus increasing taxes, it would seem absurd to expect any great change of heart in the owners of such property.

But, again, this is a question which we are, as a nation, very unwilling to face. The time is coming when we cannot longer turn our backs on it, for the rest of the world is slowly forging ahead of us through the sheer economic pressure which increases with national age; in the meantime, it is scarcely possible to do more than point out the fundamental influence which taxation has upon the housing question, and invite the serious student to a consideration of what has been done in other* countries.

What Kind of Houses

Recently the statement was made by a man who ought to have known better, that the national ideal in housing should be a house and garden for every family. It is to such extreme views that men rush in their passion for reform. To give each family a house and garden would be as intelligent as to say that every husband should make his own clothes and every wife should bear twelve children. Our national plan must make provision for the kind of houses that answer our national mode of life. Those who want gardens should have them, and undoubtedly it would be greatly to our interest to stimulate a knowledge and love of gardening in our schools, since gardening does not come naturally like walking or breathing. Its advantages in healthfulness, its possibility for deepening home ties, its facilities for opening a path to the creative instinct as applied to the beautification of the home, are beyond dispute. Yet in the end there will always be a fairly large class of people to whom gardening would be drudgery of the most slavish kind. No definite rule can be laid down in this matter. The house, whatever its type should be, is the point of departure for the development of the individual. The house is for those who live in it, for it is not houses that make a nation, but the kind of people that live in them, are influenced by them, are enriched by their comfort, or enslaved and dragged down by their discomfort and inhuman congestion.

But adding to the complexity of this problem are the tendencies of the day. Here we see a marked growth toward the communizing or centralizing of many forms of effort which hitherto have been thought to be sacred to the individual home, central heating, central cooking, central laundries, to mention only a few. This is a tendency which must steadily increase as we travel towards a higher and higher degree of democracy, for it is through these centralized efforts that we shall gain a larger measure of leisure. This has been true in many industrial lines, during the last twenty or thirty years, and we are now quite accustomed to the public utility operated by the Government or the State or the Municipality. But the war has thrown down the gauntlet to the housekeeper as never before, and we may be almost certain that the house of the future will undergo many transformations which will simplify and make easier the process of housekeeping. No one dares predict how far these will go or what form they will take, yet it would be foolish not to recognize this tendency. It would be especially foolish to set up and try to maintain the theory of the individual house and garden for everybody, when the strength of the current is certainly not wholly in this direction. The problem of the future will be to maintain the individuality of the house and the intimate family life which is our basis, while still continually reducing the amount of labor necessary to make that life comfortable and cleanly.

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*In Pittsburgh, Pennsylvania, there has been an effort to bring about a change in the method of taxing real property by gradually shifting the value from land and buildings together to land alone.

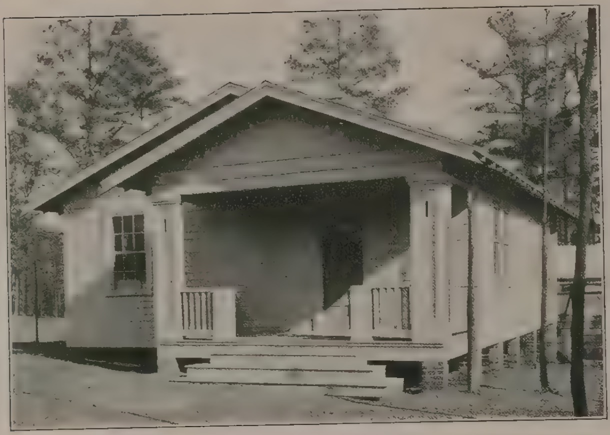
A Broader Vision of Living

Much as we may regret to admit it, it is a fact that the "three-decker" on which we have bestowed so much contempt, is a housekeeper's paradise in comparison with thousands on thousands of the small houses built in recent years. This process of simplification of internal arrangement, as worked out in the much despised three-decker, is proceeding relentlessly. It is again a part of our great national ambition for recreation and amusement, for a larger measure of social contact, for a greater freedom for individual development. Instead of remaining the ancient castle into which a man retired and prepared to defend his priceless right to solitude, the house is slowly coming to be seen as a part of the machinery by which we attain to something that is vastly more important. The automobile has opened the world to man as it was never opened before. How long will it be before the aeroplane vastly increases the sphere of his journeyings, with even less effort and expense?

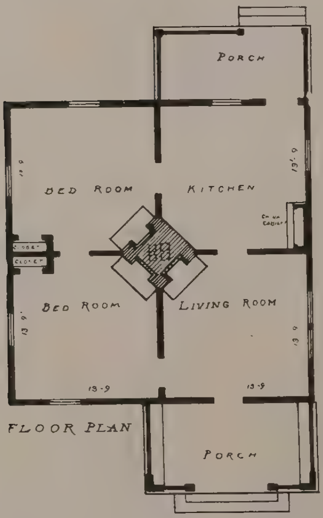
It would seem to be plain, therefore, that it is in the power of no one to decide what types of houses we are to build in solution of the housing problem. The question of size is a serious study in itself, for the factor of elasticity, and of making easy provision for growing families, has never received its due share of attention. Yet the house question is a basic one and is perhaps the most important, taken by and large, with which this country is now confronted. In all of our speculation as to the future of the house, let us not minimize the importance of the pressing problem now before us. The Government became involved in its solution as a war measure. Some of the things which it has done will no doubt contribute much to our own limited knowledge of the problem. It is significant that the Bureau of Housing of the Department of Labor decided that the Government would not lend money to others, in the carrying out of its wartime housing projects, but bought the land and built the houses as England has done. This is a step in the right direction, since it will leave the Government free to dispose of these properties in whatever manner may best serve the interests of the nation. At the proper time, it can accept the war loss involved in the present high cost of building, if there should be any, without having any complications with the borrowers of money, or with the buyers of the houses, since it wisely decided not to sell any houses during the war.

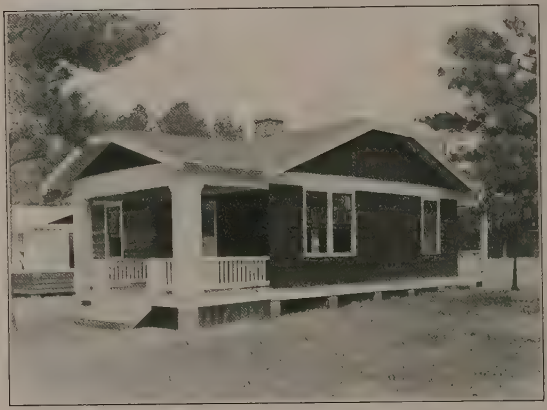
In conclusion, let us above all remember that the housing problem is not a mere architectural or engineering question. It is a profound fundamental factor in our national life.

Typical Cottages at Bayview, Alabama, a Village Where Coal Miners Enjoy All the Advantages of Modern Community Development

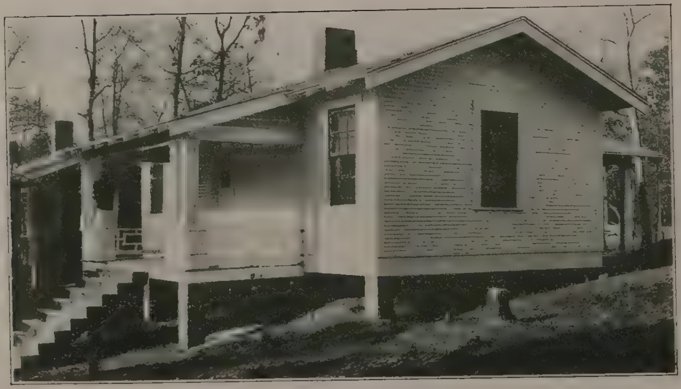


Type H—4-room House

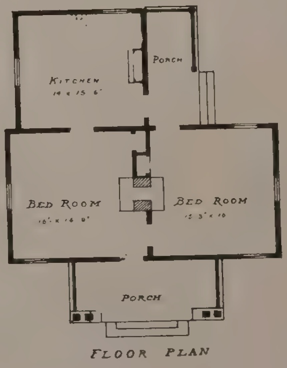




Type I, 4-room House. Floor Plan to Left



Type 3-A House. Floor Plan to Right

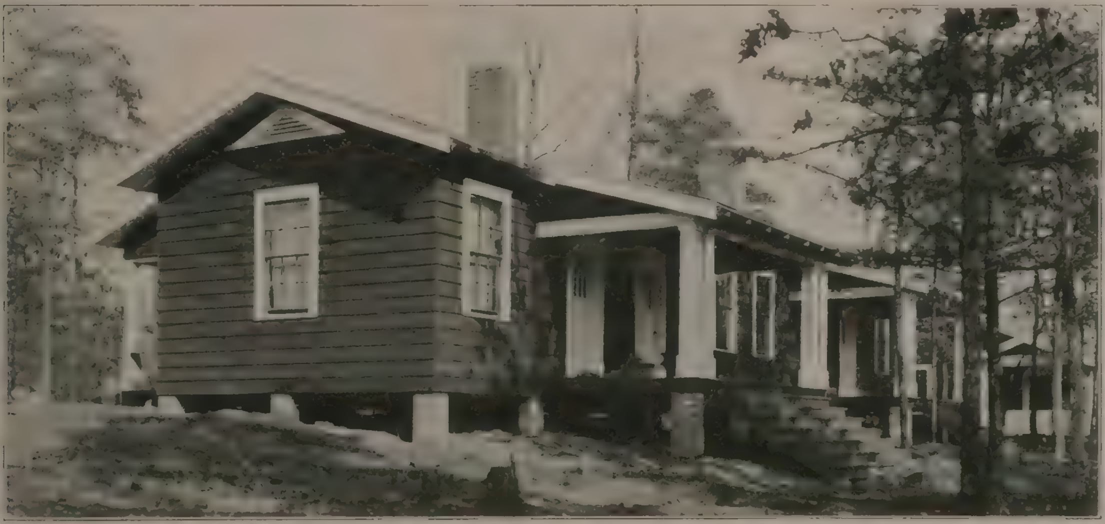


BAYVIEW, ALABAMA

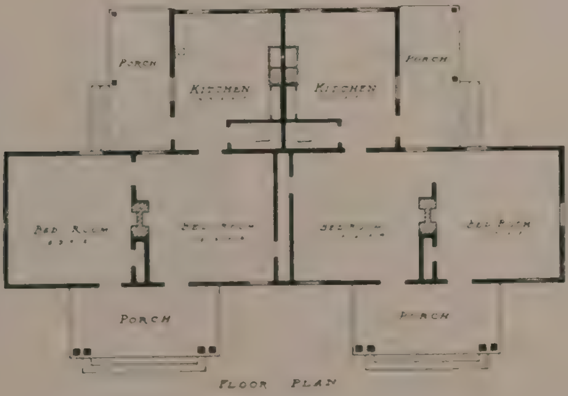
An ideal mining village established by the Tennessee Coal, Iron & Railroad Company, embracing 200 acres, and housing 500 of the company's coal mine employees and their families.

Bayview has every comfort and convenience of the best type of town, with paved streets and alleys, concrete sidewalks, water, electric lights and sanitary system. Its school and church facilities are unsurpassed in any similar community. Parks and playgrounds afford abundant recreative facilities. Skilled social science workers are regularly employed to instruct the children of the miners in all outdoor sports. A healthy community life is fostered on all sides.

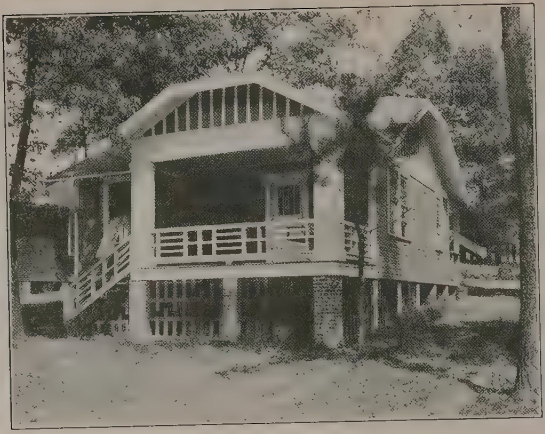
Bayview's homes, schools and social centers are constructed entirely of Southern pine.



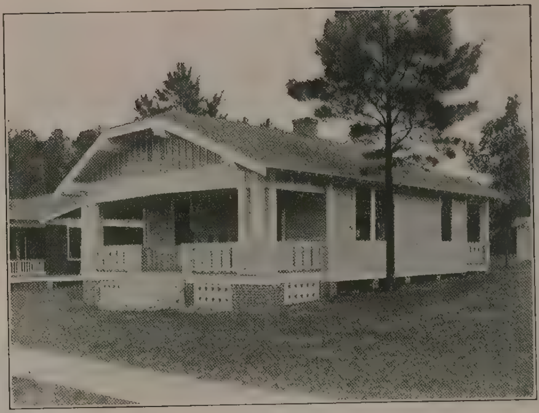
House Type 3-P. Bayview, Ala.



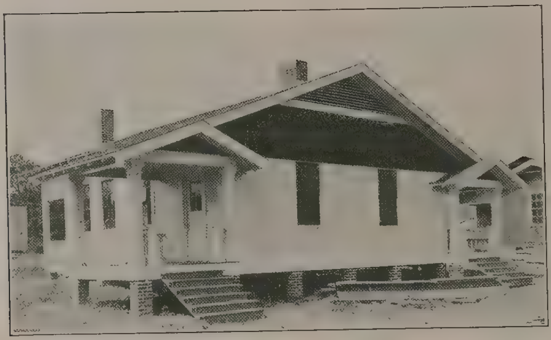
Typical Floor Plan of Double House



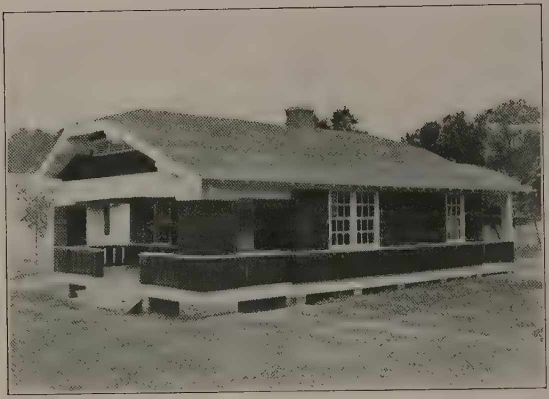
Type I House.



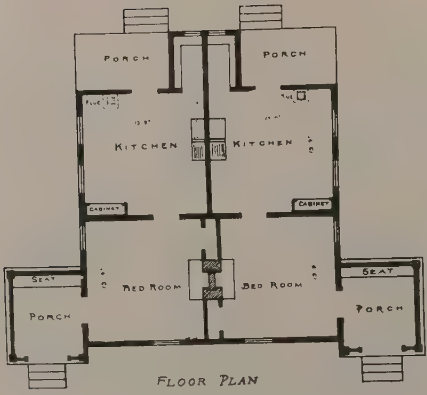
Type L House.

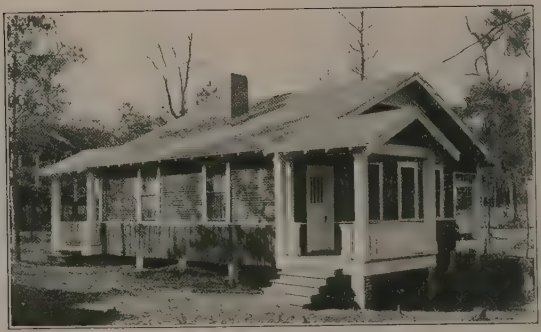


Type 2—O House.



Type M House





Type 2—N House and Floor Plan

Other Types of Homes at Bayview, Alabama

PLANNING AND FINANCING THE INDUSTRIAL HOUSING PROJECT

By ARTHUR F. CLOUGH

PART ONE

THE late war brought about a peculiar situation in the development of industrial housing projects throughout the United States. Because of the increase in the cost of labor and building materials, as well as the decrease in the amount of unemployed capital in the country, the manufacturer, the real estate operator and the speculative builder have become more circumspect in the erection of habitations until they are assured of a sufficient return on the money invested, either in rents or in an adequate profit on the sale of the property.

On the other hand, the increasing congestion of labor in various manufacturing centers throughout the country, the lack of decent living quarters in many of these centers, and the higher wages which many skilled and unskilled workmen are receiving has encouraged the ambitious worker to desire a home of his own. Hence, while the demand for houses is increasing, the supply is diminishing — and the end is not yet.

Housing and the Labor Turnover

In many communities the housing problem is becoming so acute that it is seriously affecting labor turnover in the big industrial interests. A quarter of a century ago or more small communities grew up about the manufacturing interests and the prosperity of the community depended upon the prosperity of its industries.

Changing economic and transportation conditions have altered much of this, and today the manufacturer who chooses a site for his plants unwisely, or whose country village has grown to a fair-sized city, finds a perplexing problem on his hands if he is to retain his labor and operate his plant at its maximum productive capacity. High wages alone are not sufficient to hold the most desirable class of workers. They must also find suitable living conditions in the community where they are employed, and, failing that, will go elsewhere, even at less money, where their expenditure of time and effort will bring them some of the comforts of life.

If the manufacturer provides the homes required, he has to draw upon funds which are essential to the operation of his plant and to its continued expansion as the needs of a growing business demand.

Problems for Prospective Builders

In answering the questions presented, the manufacturer must determine whether the housing problem is a vital one in his community and to what extent his continued business success depends upon it; he must also find out how, under present conditions, the necessary funds for such enterprises can be provided without tying up necessary public or private capital for long periods of time.

When considering his answers to these questions the manufacturer hears a great deal about the desirability of better housing accommodations for workers; he learns that England is spending millions of dollars annually in an effort to keep up with the increasing demand for homes; he knows that our own Government during the war appropriated many more millions to house the shipbuilding and ordnance workers; he sees lengthy articles on the types of houses that are being built, and he reads with interest of the various selling schemes by which these houses are disposed of to the workers—but in none of this material does he find a suggestion as to how he can determine the extent of his own need for industrial housing, or how he is going to finance the project if he finds it a feasible solution for his labor troubles.

The Manufacturer's Questionnaire

All of the phases mentioned have their value — but he is not ready for them yet. First he needs assurance of the wisdom of his housing project, and when convinced of that he must be shown how he is going to do it. In order to help him clarify these matters in his own mind, the following questionnaire has been prepared:

1. Is there no other solution for the housing situation in this community?
2. Can householders be induced to lower rents, convert residences into two-family or tenement houses, offer reasonable board, or take other steps to encourage the desirable stranger to settle here permanently?
3. Can contractors, real estate operators or others be induced to build and sell houses at a more reasonable cost in this community?
4. What are the financial resources of our workers and other workers in this locality?
5. Can they afford to purchase homes on their present wages, or must we raise salaries to enable them to do this?
6. Which, of various types of workers, have most difficulty in obtaining proper housing, and which are most apt to purchase homes?
7. On what terms can they afford to pay for them?
8. Will they keep up their payments?
9. If they cannot keep up payments on the purchase of homes, would it be advisable to build houses for rental purposes only?
10. Can we sell our houses at cost, or must we make a considerable profit on the enterprise to provide against possible future loss.
11. Are we taking this step co-operatively with our employees because we think it will be of mutual benefit?
12. If not, what do we expect to get out of our investment?
13. Will it bring us a more desirable class of help?
14. Will it tend to reduce our labor turnover?
15. Will the project savor of charity or paternalism?
16. Will it increase the standing and good name of our organization?
17. Will the probable return, as a whole, be worth the investment?
18. Are our workers naturally gregarious or individual?
19. In view of our answer to the foregoing question, what sort of housing would sell best?
20. How many tenement houses will we need at the start?
21. How many two-family houses and cottages?
22. How many, if any, apartment houses?
23. What will be the average cost of each of these respective types?
24. Have we any land available for housing purposes or must we purchase some?
25. In what condition is the land and how extensively must it be improved by grading, sewers, sidewalks, etc., before it will meet with our requirements?
26. What improvements are absolutely essential to start our project?
27. What will these improvements cost?
28. Does the natural contour of the land lend itself readily to any desired future expansion?
29. Are our plans extensive enough to provide for this growth?
30. What is the approximate aggregate cost of the project?
31. What is the general public opinion about the desirability of this location as a residential section?
32. Is the property apt to appreciate or depreciate in the course of time?
33. Are we going to limit the sale of houses to our employees, or will we take in desirable outsiders also?
34. In view of our answer to questions 7 and 33, what is the best selling plan?
35. Does this plan tie up our money for long periods of time?
36. Is that advisable and can we rest assured that our business growth, or unexpected emergencies, calling for cash capital, will not make it necessary for us to realize on a portion, or all of this investment suddenly and at a loss?
37. How can we protect ourselves against such a contingency?
38. Last, and most important of all — how, and where, will we get the funds to finance this project so that the maximum amount of building may be done with a small amount of capital, and the investment so made that the time our money is tied up in any single enterprise be reduced to the minimum?

In answering these questions the manufacturer will find many subjects worthy of mature deliberation. Among those which will require special attention is the analysis of the types of workers who will buy homes and the choice in the types of houses to be built for them. One large New England concern, which built up an ideal community for its employees several years ago, has found difficulty in disposing of the double or two-family type of house. Although the personnel of their organization is exceptional, they found the most of their employees reluctant to purchase half of a double house for fear of being forced into undue familiarity with the purchasers of the other half. As a consequence this type of construction has been practically abandoned in their case.

Class Distinction to be Considered

When considering this question, it is also necessary to distinguish between the homes for executives, clerical help, skilled workmen and unskilled labor. Even in these days of democracy, there still exists more or less class feeling and, in addition, the type and quality of material and selling price must be adapted to the means of the purchaser.

It is desirable to weigh very seriously the question of what one expects to get out of such a project. While there is no question but that such enterprises yield financial returns, and good ones at that, no exact statistics are available; for, if the houses be erected and sold at cost, the greatest returns the manufacturer will get from his investment lie in the increased contentment of his workers, the reduction in his labor turnover and the building up of his good name as an employer. That these things are desirable and have a financial value no one will deny, but, because they are abstract qualities rather than tangible ones, it is difficult to fix even an approximate valuation for them. There are few, if any, instances, however, where such projects have been properly carried out that have not proved highly successful.

Another query of unusual interest is whether the purchaser will keep up his payments or not. Ignoring, for the moment, the expense involved in reselling the property for the second or third time, we find two distinct viewpoints of this question. On the manufacturer's side, it is desirable to have the terms of sale sufficiently rigid to prevent his workers from disposing of their equity in the property too readily and leaving his employ or the community.

The Right Sort of Contract

From the purchaser's standpoint it is undesirable to be tied up so tightly to any concern or community that one cannot make a necessary change without suffering considerable financial loss. The right sort of contract must be one which will reconcile these two extremes — that which will be sufficiently fluid to permit the purchaser to dispose of his equity at a fair price and within a reasonable time when circumstances justify it; yet which will be sufficiently rigid in its application to prevent an efficient worker from throwing up his job and becoming a "floater" because of some passing disagreement with his superior or temporary disturbance of his working conditions. Such a contract will enable the employer to co-operate with his workmen at all times, for if a worker gets into such financial difficulties that he is compelled to realize on his equity in his home, the employer can help him dispose of it and do so without the usual loss which attends the average sacrifice of valuable real estate interests. In this way he maintains his good name as an employer and adds further laurels to his reputation for fair dealing.

The Question of Financing

If the manufacturer, after careful deliberation of the foregoing questions, has decided to go ahead with his project and has determined upon the approximate amount of capital necessary to carry it through, before he can start operations he must provide the funds to finance it, and here is where his real troubles begin.

Save in a few instances, most manufacturers today are utilizing their funds in expanding their productive capacity or meeting their increased operating expenses, hence have little or no unemployed capital. When they go to the banks they find them averse to tying up large amounts of money for long terms. If they try to obtain municipal or state aid, they find restrictions limiting the purposes and amounts for which bonds may be issued. Should they turn to their own workmen or the small investor, they will find that the increased cost of living has left them with a very small amount of money available for further investments. The final resource seems to be the Federal Government — yet here the manufacturer finds that there is no adequate legislation to provide for his housing needs.

The problem seems unsolvable — and in many cases it will continue to be unsolvable — until the Government takes a hand and provides the necessary financial aid in certain communities where the housing needs are vital ones. However, before the manufacturer turns to the Government in these days he should exhaust all other possibilities.

Some Suggestions of Finance

The following methods of financing industrial housing projects are offered as suggestions only. Some of them have been tried out and have proved successful. Others exist in theory only, yet might be made practical under the right conditions and with the right sort of organization and promotion. Because of the variations of the laws in the different states, they are offered without regard to their legal aspects. If the method seems feasible, it will be incumbent upon the manufacturer's legal department to adapt it to the particular laws of the community or state.

Method 1

Capital supplied from the manufacturer's reserve or surplus.

A prominent Massachusetts organization has successfully financed and operated an industrial housing project by the following method. They first formed a separate corporation to handle the real estate, stock of which was held by the Company, and advanced the initial funds to finance the improvement of the land and erection of the houses. When the houses were completed and sold, the purchaser made a cash payment of ten per cent of the purchase price, gave the Company a 12-year note for $1,000 and a demand note for the balance of the purchase price. Both notes were secured by a mortgage on the property. To further secure the payment of the first note, a special agreement was made whereby the purchaser convenanted that he would purchase five shares in a co-operative bank approved of by the company, and assign his bank holdings to the Company. In the banks approved by the Company, five shares at five per cent matured in 12 years and two months to the sum of $1,000. Since the majority of the banks have always paid over five per cent interest, maturities have invariably been well within the 12 years.

If the purchaser was under 60 years of age and passed a satisfactory physical examination by the Company's physician, the Company also agreed that, in case of the death or total disability of the purchaser at any time during or before the expiration of the 12-year period, it would accept the surrender value of his co-operative bank holdings at the time of death or total disability in full satisfaction of the time note of $1,000; and it further agreed that it would not make demand upon the demand note as long as the purchaser was not in default under the terms of his mortgage or under the terms of his agreement relative to the co-operative bank investment.

Monthly rental charges were computed on the basis of 1/12 of five per cent interest on 90 per cent of the purchase price — to be reduced after 12 years when the $1,000 maturing in the co-operative savings bank was applied on the principal. Taxes, water rates, insurance, etc., were taken care of by the purchaser.

In a supplementary contract the purchaser agreed that he would not convey his equity in the property to a third party without first offering said equity to the Company on the same terms which the said third party was prepared to offer.

The following table shows clearly the factors involved in the sale of house and land worth $3,851.50:

Total purchase price	$3,851.50
First payment of 10 per cent	385.15
Balance loaned on mortgage	3,466.35
Amount due in 12 years, secured by time note	1,000.00
Balance secured by time note	2,466.35
Monthly interest (rent) during the first 12 years	14.45
Monthly payments on 5 co-operative bank shares	5.00
Total monthly payments during first 12 years	19.45
Monthly interest payment after 12 years	10.30

Total loan	$3,466.35
Five per cent	173.32
1/12 (rental charge)	14.45
Demand loan	2,466.35
Five per cent	123.32
1/12 (rental charge)	10.30

The purchase price on the property represented the actual cost of the house, land and improvements without profit to the Company, this including the expense of building, heating, lighting, plumbing, piping, hardware, fixtures, papering, window shades, screens, concrete cellar floor, granolithic walks, rough grading, finish grading, planting and clothes reel.

Advantages.— The Company's money is fully secured and the purchaser's equity fully protected. The contract is fair to both parties, affording the company an opportunity to control the resale of the property if it so desires and affording the purchaser an opportunity to dispose of the property at a profit, should the occasion require. This fluidity in the disposition of the purchaser's equity has always been considered as highly desirable and the foregoing arrangements seem to protect the interests of all. The low monthly payments (totaling $19.45 in the example given) place the purchase of a home within the reach of the average workingman. The purchaser is protected in case of death or disability, and all appearance of charity or paternalism is avoided by permitting the purchaser to make his periodical payments to the co-operative bank rather than the Company. At the end of twelve years the purchaser can transfer the mortgage for the balance of the purchase price to other hands, if he so desires, and thus become independent of the Company's interest.

Disadvantages.— The company has to advance the money to finance the project. Its funds are tied up for a period of twelve years or more. The plan makes no provision for the worker who cannot pay down 10 per cent of the purchase price and suggests no method by which he would be encouraged to save up this amount.

Method 2

Philanthropy and 5 per cent.

This plan, which is popularly known by the above title, was originated by General George M. Sternberg in 1897, when he organized the Washington Sanitary Improvement Company. It affords corporations and individuals actuated by philanthropic motives an opportunity to provide funds for the relief of civic or community congestion and, at the same time, realizes a conservative but safe return on their investment.

Originally limited by its charter to a capital stock of $500,000, by investing its surplus in houses and by borrowing money upon its real estate it has been able to increase its usefulness, and the assets of the company now amount to nearly $1,000,000, with an indebtedness of $225,000.

Houses are built for rental purposes only, as it was felt that their sale would take them out of the Company's control and there would be no way of getting rid of objectionable occupants.

Rents are figured on 9 per cent gross income on total cost for eleven months' rent. This allows 5 per cent for dividends to stockholders; 2 per cent for taxes, agent's commission and exterior repairs, and 2 per cent for the surplus fund. Under the Company's charter, dividends are limited to 5 per cent.

Interior repairs are provided for by a rebate system, the twelfth month's rent going for repairs, if necessary; and if not, going to the tenant as a reward for his care of the property. The average rentals range from $7.50 to $12 a month.

Advantages.— The chief advantage to industry lies in the relieving of the manufacturer from the investment of funds needed in other activities. The fact that rents can be made lower when houses are not built for sale would also be an advantage to industries employing unskilled and consequently poorly paid labor.

Disadvantages.— The funds are tied up indefinitely and, furthermore, at this time money for philanthropic enterprises is not as plentiful as it was some years ago, and the industrial interest relying upon such aid may find it a rather elusive source of capital. In addition, for the skilled workmen, receiving a fair wage, the project savors too much of charity, and his self-respect causes him to resent it as a reflection on his ability to earn a decent living.

Method 3

Housing projects financed by private enterprise, or "Home Building Corporations," and sold at low (?) cost to workers on a long term basis.

Advantages.— The greatest advantage of this method lies in the fact that it relieves the manufacturer from the necessity of investing his own funds in the project.

Disadvantages.— This method usually has many grave disadvantages, chief of which is the fact that such "building corporations" are usually money-making schemes, run for a profit by professional real estate operators, and the terms of sale are such that a purchaser, in addition to paying a round price for his "installment-plan" house, gets poor material and workmanship and stands to lose a substantial sum, if not all of his scanty savings, when he is compelled to dispose of it.

Method 4

The capital loaned by banks or trust companies on security furnished by the manufacturer until the property is disposed of when the bank takes a first mortgage on it, arranging for repayment by long-term notes.

Advantages.— This plan has the merit of simplicity and it relieves the manufacturer from the necessity of putting up his own capital. In place of it he offers his plants or other property as collateral until the houses are erected and sold to his workmen, then turns a first mortgage on the property over to the bank to replace his collateral, which is released for other uses.

Disadvantages.— Few manufacturers would care to, or have the power to take such a step. Such a plan would have to be very carefully worked out, with strict regard to its legal aspects, and care taken to protect the bank's money in every way. Details regarding the amount paid down on the purchase of a home, and subsequent monthly payments, interest, etc., could be a modification of those outlined in Method 1.

Method 5

Housing projects financed by public subscription.

Under this plan a corporation is formed by the local manufacturers and business men of the community for the purpose of financing the erection and sale of houses at cost, on a low margin of profit. Shares can be issued and disposed of in the following manner: Members of the corporation can subscribe to them on a pro-rata basis, according to the amount of housing each one intends to do; shares can be offered and sold to the public if the appeal is made to the investors of the community on the ground that it is a civic duty to support such a project and thereby promote the welfare and reputation of the municipality; shares of small denomination could be issued and sold to workmen under an agreement permitting the purchaser to convert his shares into an equity in a home when their valuation was sufficient to equal 10 per cent of the purchase price on the property he desired. By this method many men who would otherwise never purchase homes would be encouraged to save their money and invest it in property, a certain portion of working capital would always be available and the burden of financing the housing activities in the community would be fairly equally distributed.

Advantages.— The manufacturer who has only a few houses to erect receives as good a price on the work as his associate who has many to construct. He is relieved from the necessity of bearing the whole burden or expense of financing his project. He encourages many men to invest small amounts of money in the community before they have reached the point where they can pay down 10 per cent of the purchase price on a home, giving them a definite reason to be thrifty and thereby stabilizing his labor. He is able to erect and sell houses at cost, or very near cost, and the awakened public interest and civic pride will enable him to take care of future housing problems much more readily.

Disadvantages.— The chief difficulty would lie in persuading the moneyed men to invest in the enterprise outside of the interests which would directly gain by the better housing of their employees, owing to the low returns necessary on any funds so employed.

Method 6

Housing enterprises financed by the sale of shares to employees.

This is in effect the same plan as outlined in Method 5, save that an outside corporation is formed by the Company, which holds a portion of the shares, the remainder being issued in small denominations and sold to employees, who, when they have accumulated sufficient valuation, exchange them for an equity in a home, equal to a given percentage of the purchase price.

Advantages.— Its chief advantage lies in the encouragement of thrift among the employees of an organization and the consequent stabilizing of labor which will ensue from the worker's having even a small amount of money invested in the community. An adaptation of this plan would overcome one of the objections to Method 1 — where no encouragement to save is held out to the worker who has not accumulated sufficient to pay down ten per cent of the purchase price.

Disadvantages.— Only a small portion of the burden of expense in financing his housing project would be thus taken from the manufacturer's shoulders by this method. Furthermore, its success would be problematical save in very large organizations employing several thousand workers. Another difficulty would be found in the fact that many workers have their small savings tied up in Liberty Bonds at the present time.

Method 7

Housing projects financed by the issuance of municipal bonds.

Advantages.— Any plan of this kind would relieve the manufacturer of a part, if not the whole, of the expense involved in housing his employees and, from that standpoint, seems desirable. From the city's viewpoint it would tend to stabilize real estate value, increase the amount of taxable property and permit municipal control of the various improvements so as not to depreciate other property.

Disadvantages.— Federal restrictions prohibit the issuance of municipal bonds beyond certain limits without the consent of the Government. Whether this consent could be gained or not is problematical, but it would undoubtedly be worth the effort in communities where the housing needs are urgent ones. There is also a question as to how banks and investors would look upon bonds issued for such a purpose.

Method 8

Industrial housing projects financed by the State.

In 1911, the Massachusetts Legislature created a Homestead Commission whose avowed purpose was to use public funds for assisting workers and others in acquiring homes in the suburbs of cities and towns.

Such a bill was reported by the commission in 1912, but was not upheld by the Supreme Court, which declared that the use of public funds, or any funds over which the public had control, for such purposes was unconstitutional, and it was not until the latter part of 1915, that an amendment making such appropriations constitutional was finally approved by the Legislature and ratified by the voters in the State election by a majority of nearly 3 to 1.

Another wait then ensued for lack of funds to carry on the work, but in 1917 the Legislature, by Chapter 310 of the General Acts, made available to the Homestead Commission an appropriation of $50,000 for a demonstration or experiment in the construction of homes within the means of low-paid workers.

After careful consideration the commission selected Lowell, Mass., as the community for its initial activities, largely because of its nearness to Boston, its numerous and varied industries with a considerable body of low-paid workers, its suitable available lands, and the cordial co-operation with the commission of the city authorities, Board of Trade and citizens.

A plot of land has been selected and plans laid out for about thirty houses, costing from $1,952.85 to $2,381.65. The erection of 12 houses was begun October 16, 1917. All the houses are of frame construction and the workmanship is superior to that usually done on contract or houses built by speculative builders. Each house has cemented cellar, ventilated attic, bath, water-closet, washbowl, hot and cold water, one set wash-tub, electric light and gas connection for kitchen gas range. Heating is intended to be by range, with provision for additional stoves, unless the purchaser chooses to put in a heating system. The main thoroughfare of the community, Homestead Road, has been accepted by the City of Lowell as a public way and is being surfaced and equipped with sewers, water, sidewalks, trees, electricity and gas.

It was originally expected that these houses would cost about $2,000, but the recent rise in the prices of materials, labor, etc., has made it impossible to provide them at that figure.

The selling plan has been carefully worked out and, in addition to providing for the proper upkeep and use of the property, has a requirement stipulating that when a sale is desired the property shall first be offered to the Homestead Commission. It is hoped in this way to stabilize values and prevent property from deteriorating.

The lowest terms upon which it was found that property could be sold with safety was with a small cash payment and a nine per cent gross income on the balance remaining unpaid, divided into monthly installments. This figures out to approximately 75 cents per month on each $100 of the face value of the mortgage. Thus, if the indebtedness remaining after the initial payment amounted to $2,000, the monthly installments would be $15; if the indebtedness was $2,200, the monthly payment would be $16.50, and for $2,400, it would be $18.00 a month.

The commission consists of the director of the Bureau of Statistics, the bank commissioner, the president of the Massachusetts Agricultural College, one member of the State Board of Health (to be elected by the board), and three other persons, to be selected by the Governor, with the advice and consent of the Council.

It is vested with the authority to take or purchase in behalf of and in the name of the commonwealth a tract or tracts of land for the purpose of relieving congestion of population and providing homesteads or small houses and plots of ground for mechanics, laborers, wage-earners of any kind, or others, citizens of the commonwealth; and may hold, improve, subdivide, build upon, sell, repurchase, manage and care for such land and the buildings constructed thereon in accordance with such terms and conditions as it may determine upon.

While the project has not yet reached the point where its success or failure can be accurately predicted, there seem to be no substantial reasons why it should not work out satisfactorily. Undoubtedly, in the light of accumulated experience, slight modifications may be made in the original plan of the commission, but they are taking a step in the right direction, and those concerned with industrial housing problems will watch their progress with no small degree of interest.

PART TWO

Within the last few years many communities have awakened to the need of greater and better industrial housing accommodations for their workers, and before outlining the ideal method for financing such projects, it might be well to consider for a moment some of the enterprises which are already under way. Part One of this article discussed some of the methods by which projects could be financed. Since the majority of these schemes seemed to point toward the raising of funds by the co-operation of the industrial interests with the citizens in any given community, the following examples are typical of the means by which this is being worked out in various sections of the country. They are not offered as the solution of any particular housing problem, but merely as proof of the success of this kind of co-operation.

Flint, Mich.

The need of increased housing accommodations brought about the formation of a "civic building company." Plans were originally made for 3000 houses, and up to March, 1918, 138 of them had been completed and sold. The selling plan called for a payment of 10 per cent of the purchase price when the sale was made and 1 per cent a month thereafter until the property was paid for. Interest charges are 7 per cent annually and the monthly payment of 1 per cent includes the interest charge on the investment, so that the payment on principal and interest are simultaneous.

Coatesville, Pa.

One hundred volunteers, each of whom pledged himself to take $1,000 worth of stock, organized the Coatesville Housing Company. No cash first payments are required in the sale of a house, the purchaser obtaining a first mortgage on the property from the building and loan association and permitting the housing company to carry a second mortgage for the balance of the purchase price. By an insurance clause the company also agrees, in case of the purchaser's death before the first mortgage is cancelled, to take up the second mortgage so that the home is not lost to the survivors, the family continuing to pay a low rent on the property until the building and loan mortgage is liquidated.

Williamsport, Pa.

The Williamsport Improvement Company was organized by the Board of Trade with an authorized capital of $1,000,000, on which at least $500,000 in bona fide subscriptions was required in order to make all the subscriptions binding. The stock-selling campaign lasted one week, at the end of which time public-spirited citizens had over-subscribed the necessary amount. It is proposed to build at least 320 homes and, to make sure that benefit will inure to the public, dividends upon the capital stock were limited to 6 per cent per annum, accumulative.

Waukesha, Wis.

Here the city manufacturers combined to form the "Manufacturers' Building Association," with a capital stock of $100,000; secured options on land; contracted for building material, and are erecting small houses to rent and sell at prices within the reach of the common laborer.

In considering the various methods so far suggested, it will be found that there are desirable features in many of them, but that no one combines enough of these features to make it the ideal plan. In developing this ideal method, however, it must be remembered that laws, conditions and requirements vary in different communities. Therefore, all that can be done is to suggest the points considered most essential and leave it to the promoter of the project to adapt it to his particular needs.

Primarily, the housing problem is of interest to every right-minded citizen and the expense of such a project in any given community should be shared by

A. The industrial interests.
B. The city government.
C. The business organizations.
D. Contractors who reap a profit on the construction work.
E. Business men and other public-spirited citizens.
F. The working classes themselves, who derive direct benefit from such activities.

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With a proper appreciation of this fact and the right sort of campaign, the manufacturer will find here a ready source of funds to supplement his own capital in the promotion of building operations. In order to harmonize all of the various investing elements to whom he must appeal, he may find it advisable to proceed in the following order:

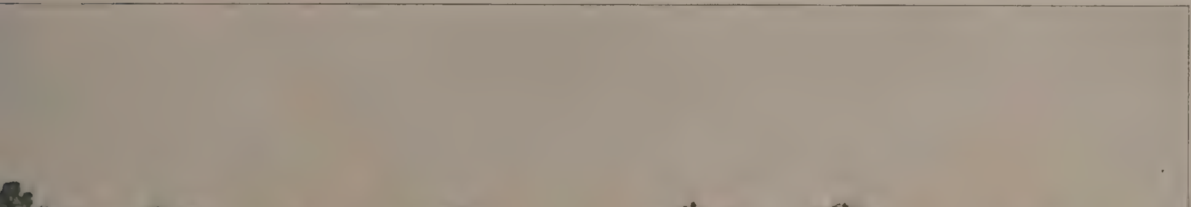
First, he should take the matter up with the other industrial interests of the community and endeavor to combine their financial resources to mutual advantage in the promotion of better housing.

Second, if several can be found who agree on this need, even though the building operations are to be scattered in various parts of the city, they should get together and form a Co-operative Housing Association, designed to erect, rent or sell low-cost houses on easy terms to the workers of the community.

Third, efforts should also be made to interest the other investing factors of the community in the order given above.

Fourth, the charter of the Association should be carefully drawn up so as to embody as many desirable features as possible. In considering the nature of this charter it should be borne in mind that the Association is not formed primarily as a profit-making institution, but that all of its shareholders have an equality of interest which entitles them to share equally in all its benefits.

Fifth, the type of organization which best meets these requirements is apparently a combination of the old joint-stock company and the more modern corporation, embodying the most desirable features of the joint-stock organization, yet also deriving the benefits which come from incorporation. Under this plan, we have a joint-stock corporation, wherein an indeterminate number of individuals voluntarily associate for the purpose of providing capital for a given enterprise; the capital being divided into



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transferable shares, ownership of which is a condition of membership. The essential advantages of this form of organization would be as follows:

1. There is an equality of interest.
2. It is not run for a profit.
3. The capital stock is divided into equal shares.
4. These are readily transferable, and transfers can be made without the consent of the other members.
5. The possession of a given number of shares indicates the owner's part in the income (dividends or interest) of the enterprise.
6. All share in the benefits proportionately, since there is no preferred nor cumulative preferred stock.
7. The element of incorporation removes the individual liability or financial risk by giving the body an impersonal standing, thus protecting, as far as possible, the interests of the smallest investor.
8. This form of organization results in greater financial stability, since the interests of all are equally bound up in it, thereby carrying a stronger appeal to the investor.
9. The sale of a large number of transferable shares permits of a wide distribution of the expense of the project, while the flexibility of stock transfer gives the fluidity desired to protect the interests of all at all times.
10. It provides the principle of association, not only to capital but also to management, for the investors can elect directors or a board of management to conduct the operations and administer the collective property of the corporation.
11. Stock can be exchanged for an equity in the property of the corporation.
12. Future growth and its consequent necessity for an increased capitalization can be taken care of in two ways — either by a reorganization of the corporation; or, if so provided in the charter, by a majority vote of the stockholders to issue additional capital stock to the amount required. If it is desired to insure still further against over-capitalization or stock manipulation for profit by the management, each stockholder can be limited to but one vote, irrespective of the number of shares owned. This would be apt to prove objectionable, however, in communities where the stock is held by some hundreds or thousands of investors, owing to its unwieldiness and the difficulty of convincing many uninformed investors of the necessity of increased capitalization.

Sixth, bearing in mind the desirability of making the investment as stable and attractive as possible to all investors, and having determined the extent and cost of the proposed initial housing operations, it would be necessary to fix the annual returns required to pay a fair dividend to the investors, take care of taxes, upkeep and operating expenses and have enough left over to go toward a surplus or reserve fund.

Limitations Upon Annual Dividends

Definite limitations should be set upon the annual dividends, and, in most cases, if houses are to be sold at cost, they should be ranged from 5 per cent to 7 per cent of the amount subscribed. Added to this, of course, is sufficient percentage to take care of the reserve fund, taxes, etc. Any surplus left over from taxes, maintenance, etc., should go into the reserve fund at the end of the year. Local conditions will influence the total returns required, but ordinarily they will range from 9 per cent to 14 per cent of the total paid in stock, annually.

Once the foregoing figures are determined, it will be comparatively simple to figure out the basis on which properties can be sold. In most cases, the plan outlined in Method 1 will prove satisfactory — that is, a certain percentage as a cash payment at the time of purchase, and a sufficient monthly percentage payment to take care of the dividends, maintenance and reserve funds. Payments on the principal are taken care of by obligating the purchaser to take out shares in a co-operative bank. If the prospective purchaser is unable to make the required initial payment at the time of purchase, he is permitted to purchase shares in the Association from time to time, these shares being of small denomination, and as soon as their valuation equals the initial payment on the property desired, they are turned over to the Association in lieu of money. Thus he is encouraged to save, is given an interest in the project, and gets a better return than the banks would pay on his savings while he is waiting until he has accumulated a large enough amount to take care of the purchase payment on the property he desires.

Opportunity for the Workers

Under such a plan, the worker purchasing a home, can continue to invest his surplus savings in the project and get a better return from it than he could elsewhere. Since, in the case of skilled and well-paid workmen, the payments on his property would not ordinarily utilize all he could spare from his pay envelope his familiarity with the project would make such an investment more attractive than placing money in a bank at 3 per cent or 4 per cent interest.

Appeal to the municipal government and other investors could also be made on the grounds that the successful completion of such a housing enterprise would enhance property values, increase the amount of taxable property — thereby increasing the city revenue, develop the industrial interests of the community, attract and provide work for more citizens in the community — thus increasing the volume of business done by merchants and others, and transform into substantial citizens many workers whose stay would otherwise be brief. It would hold an appeal to the moneyed class because it is a comparatively safe investment, its assets are tangible ones and largely indestructible, and the returns on money invested are assured and as large as could reasonably be expected when the element of risk is practically eliminated.

The foregoing plan is not perfect, of course, yet it provides a means of obtaining the necessary capital to finance housing operations and to do so without the delay which would attend an endeavor to enlist municipal, state or Federal aid. Ultimately, the Federal Government may have to take a hand in the housing operations of congested communities, where the housing accommodations are inadequate. Private capital, or even capital raised by public subscription, is not always obtainable quickly enough to alleviate conditions and many communities are already suffering from this cause.

In Bridgeport, for instance, $1,000,000 was provided by local capital to house the workers of the city, yet that has been far from sufficient and the influx of new workers has been much more rapid than the building operations which have gone on to accommodate them.

Following in England's Footsteps

Eventually we will have to take the steps that England has already taken and establish some form of Government control and assistance to cope with our housing problems. This might take the form of a Housing Commission vested with the authority to survey housing needs in various communities and determine the relative importance of industrial enterprises. Such a commission should also be empowered to seize or purchase land, buildings or materials; and to design and construct communities and industrial settlements where most needed.

In order to do this, Congress must authorize the appropriation of sufficient money to finance such work, whether construction is carried on by the Government or loans made for construction by private enterprise. By thus accelerating the housing operations in communities where the need is most urgent, the Government can be of invaluable assistance in stabilizing and rendering more productive the most important, yet most uncertain and undependable factor of all industry — the wage earner.

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PLANNING AND FINANCING THE INDUSTRIAL HOUSING PROJECT

Factors in Determining Its Advisability	Sources of Capital	Methods of Financing	Desirable Features of the Ideal Method
Is there no other solution for the housing situation in this community?	Manufacturer's Own Funds	From manufacturer's surplus	Must supply Funds quickly
Can we go into such a project extensively enough to provide an adequate remedy for our housing situation?	Other Industrial Interests	Co-operative Associations	Must not tie up the manufacturer's funds for any great length of time.
Have we the funds to finance it?	Municipal Government	Home Building Corporations	Must give a reasonable return on the investment
If not, can we get them?	Business Organizations	Financing Corporations	Must appeal to the investor
What do we expect to get out of this investment?	Contractors, Builders, etc.	Business Organizations	Must be flexible enough to permit any desired future expansion
Will it — a—Reduce our labor turnover? b—Attract a better class of workers? c—Build up the community and its industrial interests? d—Enhance property values? e—Tie our money up for long periods of time?	Real Estate Operators	Manufacturers' Associations	Must avoid any appearance of charity or paternalism
Can we provide homes at a low enough figure to meet the financial resources of our employees?	Merchants and Other Business Interests	Bank Loans	Should weld labor and capital together to mutual advantage
	Speculators and Investors	Issuance of Municipal Bonds	Should give a wide distribution of expense
	Philanthropists	Public Subscriptions	Should not be run for a profit
	Banks — Trust and Insurance Companies	Private Enterprise	Should issue shares of small denomination so as to be within the reach of every investor
	General Public	Real Estate Promotion	Should permit stock to be exchanged for its equivalent equity in the property of the corporation.
	Own Employees, and other Workers	Pro Rata Distribution of Expense Among — a—Contractors b—Manufacturers c—Other interests	
	State Appropriations	Philanthropic Contributions	
	Federal Government	State Appropriations	
	Co-operative Financing	Federal Government	

Factors in Selection of Types of Houses	Factors in Determining Selling Plans	Desirable Features of Ideal Plan
Do we intend them for sale or for rent?	What is the total cost of project?	Should provide homes at cost, or a very low figure
Type of Worker — a—Gregarious b—Individual c—Dependents d—No dependents e—Skilled f—Semi-skilled g—Unskilled h—Highly paid i—Well paid j—Poorly paid	What return must we have on total investment to take care of — a—Dividends? b—Maintenance? c—Reserve funds?	Should require a small cash payment with purchase
Construction Cost	Having determined monthly payments necessary to take care of a, b, and c, can our workers afford to buy houses on such a basis?	Should make provision for workers who cannot make initial payments
Utility	If not, should we — a—Reduce dividends? b—Increase wages?	Should take care of property disposal if purchaser is compelled to sell
Appearance		Should take care of payments on— a—Principal b—Interest c—Taxes d—Life Insurance e—Property Insurance f—Maintenance and repairs
Selling Value		Should avoid all appearance of charity or paternalism
Location		Should prove equally advantageous to capital and labor; the investor and the purchaser
Probability of Increase in Valuation		

HOUSING BY EMPLOYERS IN THE UNITED STATES*

LEIFUR MAGNUSSON

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COMPANY housing in the United States dates from the beginning of the factory system. The colonial manufacturer who established his mill where water power was available usually found an undeveloped country, and by force of necessity had to provide accommodations for the labor which he brought to his establishment.

A good many early housing developments were found by the agents of the United States Bureau of Labor Statistics in the present study of industrial housing. One project connected with a cotton mill in Wilmington, Delaware, dates back to 1831. Houses dating from 1871 and 1875 are still in use in the bituminous coal fields of Pennsylvania; and in the anthracite region from the period 1840–1850. Company housing developments dating as far back were found in other industries, as for instance a cotton mill in South Carolina dating from 1845, one in Georgia from 1850 and another from 1856.

Before undertaking its investigation the Bureau secured from various sources, periodical literature, letters of inquiry, etc., a list of firms which did any housing of their employees. The list secured contained over 700 firms; but without question the list was incomplete. A thousand would probably be a conservative estimate of the number of industrial employers in the United States who do housing work. The list furthermore did not include railroad companies, seasonal labor camps, and the agricultural towns of the Southwestern United States. How many workmen are employed by these thousand or more companies doing housing or the number housed by them has not been ascertained.

Scope of the Inquiry

Altogether 213 separate companies were covered in the study undertaken by the Bureau, including subsidiary companies of large holding corporations which were classed as separate companies. The companies included controlled 423 establishments or plants and employed 466,991 men of whom 160,645 or 34 per cent were accommodated in company houses. Boarding houses were not included in this study. The data gathered were generally for the year 1916.

As may be readily understood the investigation was not comprehensive, but merely representative, though it covered a considerable extent of territory. It included the bituminous coal regions of Pennsylvania, West Virginia, Ohio, Indiana, Illinois, Alabama, Tennessee, Kentucky, Colorado and Wyoming; the anthracite coal region of Pennsylvania; the iron mining districts of the North, including Michigan, Wisconsin and Minnesota; and of the South; copper mining in Michigan and Tennessee; and the copper and gold region of Arizona, New Mexico and Colorado; the two principal districts in the North and the South of iron and steel and allied industries; explosive manufacturing, the two textile districts of the North and South; and a group of certain miscellaneous industries representing such industries as salt manufacturing, zinc smelting, manufacturing of grinding wheels, cordage and rubber manufacturing, cotton mill machinery, silk and artificial silk, arms and ammunition, and lumber manufacturing.

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*Summary of a report by the United States Bureau of Labor Statistics on Housing by Employers in the United States. Summary tables presenting facts disclosed by this study will be found in the Monthly Review of U. S. Bureau of Labor Statistics for November, 1917.

Town Planning

The survey revealed that town planning has not been given any great consideration in the large majority of cases; technical town planners had been consulted by 15 per cent of the employing companies studied. The idea of consulting town planning experts, furthermore, is of recent origin; and the employment of such experts seems relatively more frequent on the part of manufacturing employers than of mine operators. Model towns with few exceptions are of recent origin.

Employers are little hampered by existing buildings and city development in the planning of their housing projects; for, of the 236 developments for which separate information was secured, 157 or two-thirds are reported as located on undeveloped land requiring the laying out of new towns. But town planning and landscaping are likewise possible in city suburbs and subdivisions, though perhaps with more limitations on their scope. Of 236 housing developments 16 or 6.8 per cent are in suburbs, 31 or 13.1 per cent in city subdivisions, 16 or 6.8 per cent are on lots already laid out within city blocks, and 10 or 4.2 per cent are on a combination of the different types of development. Six or 2.6 per cent do not report on this point.

A failure to give thought to town planning and a general use of the rectangular system without regard to site contours has resulted in absurd grades in some towns. Grades of 14 per cent are found, and in one case when road construction was in progress, the company had to install an engine to assist in hauling wagons up the steep grades.

Street Widths

Streets in company towns are almost without exception ample in width, frequently if anything too wide, making the cost of original construction and upkeep unnecessarily high, besides frequently resulting in untidiness. The prevailing width for streets is 45 feet, and for alleys 15 feet. In mining towns, however, wide streets may be justified as a precaution against fire; but even then the evils of too wide streets can be obviated by paving or grading only a narrow central portion of the street, or by providing a good setback from the street line for the houses, and then if necessary later on widening the graded or paved portion of the street by decreasing this setback.

The technical districting of land areas, restricting the land for special uses, is not generally practiced by employers in laying out company towns. There is always a natural tendency, however, to place stores at the center of the community and to group houses around that center.

Restrictions

Aside from restrictions against the keeping of saloons or the following of noxious trades contained in all leases and deeds of sales, such other limitations as are attempted relate to the keeping of domestic animals, type of fences and outbuildings, type and cost of house, etc.

Some employers have decided against all restrictions on the ground of the danger of establishing paternalism, a danger made evident by the fate of Pullman, Illinois. In one town in question, the agent of the Bureau noted the following results:

> "Many tenants keep chickens and some keep cows and horses. In consequence the backyards are untidy. Some of the lots have two houses, one in front and one on the rear of the lot. In some cases the person buying a lot put up a cheap house on the rear of the lot and lived in it for the first few years and then the tenant would put up a better house on the front of the lot and rent the rear house. In a few cases the barn has been converted into a rear house. Business buildings, stables, stores, etc., have been built in the residence district."

In the matter of race restrictions, one employer alternated the negro and immigrant families in his houses declaring his purpose to be to avoid too great clannishness and quarrelling of neighbors in the South. Negroes are always of course segregated, as are Mexicans in the southwestern company towns.

Community Services

Public utilities are provided and certain governmental functions are exercised by the employing companies themselves in the large majority of cases in the 236 communities studied. When the agency providing the utility is a private company, such company is frequently a subsidiary of the employing company, or controlled by the same individuals who control the employing company. No water system other then wells or outside hydrants are provided in 14 or 6 per cent of the 229 communities reporting; no sanitary sewers in 91 or 40 per cent; no storm sewers in 116 or 50 per cent; no electric lights in 39 or 17 per cent; no gas in 173 or 76 per cent; no street paving in 103 or 45 per cent; and no sidewalks or gutters in 43 or 19 per cent of the communities studied.

In over one-half of the communities reporting, street cleaning and lighting, fire protection, sanitary collection and sanitary regulations and restrictions upon the use of the land for stores, sale of liquors and type of residences, etc., are functions of the employing company and not of the community. In 85 or a little over one-third of all cases, the company also provided the police protection of the community. Generally speaking employers merely assist in the provision of schools and churches. No hospitals or playgrounds are found in over one-third of the communities studied.

The chief characteristic noticeable in every company town is its uniformity, due to the tendency to erect a certain uniform style of house and to lay the town out along rectangular lines of survey. The company town suffers from a wrong kind of deliberate planning — wherein it does not differ greatly from the non-company town — largely because the housing work is incidental to the principal business of the employer and does not receive consideration in proportion to that given the purely business part of the employers' enterprise.

Another characteristic of the company town which it shares with most other communities has been its disregard of the advantages of vegetation, planting of trees, grass and shrubbery. Bare court yards and surroundings are not only unsightly, but as one large coal operator in Pennsylvania pointed out, they are a menace to health as the dust and dirt which generally collect are prolific carriers of disease.

As land is plentiful in practically all company housing developments, with the exception of a few in the eastern states located within the limits of large cities, there is found no tendency toward crowding on lots. The narrowest lots found (one-third being 20 and under 25 feet in width) are for houses built by explosive manufacturers, unquestionably due to the prevalence of row houses. Lots for company houses built by copper mining companies in Michigan and Tennessee, coal operators in Ohio, Indiana, Pennsylvania, West Virginia, Colorado and Wyoming are generally 50 and under 60 feet in width. In the mining region of the North few lots less than 50 feet wide are found, and in Alabama few less than 40 feet. Narrower lots are found in a group of certain miscellaneous industries where one-third of the lots are under 40 feet.

The Company House

The company house tends to a standard both as respects its plan and material of construction. The standardization goes even to the matter of the color of its exterior. Certain types of houses are characteristic of different sections of the country; and in the eastern states there is a further difference in the type of house in the manufacturing town and in the mining town, a thing which is not true in the northern and southern states, where there is no essential difference in the company house in the manufacturing town and in the mining town. As no company towns in the far western states entered into this study no statement can be made as respects that section of the country.

A dwelling for the purposes of this survey is defined as the family unit, the selling or renting unit, as the case may be. Thus a double house is counted as two dwellings.

General Features of Company Houses

It may be well to point out some of the general features of company houses as disclosed by the Bureau's investigation. Of the 53,176 individual dwellings, 25,582 or 48 per cent are single dwellings; 18,871 or 36 per cent double dwellings; and 6,014 or 11 per cent row dwellings, while all other types combined number only 1,938 or about 4 per cent of the total. In 1 per cent of all cases the type is not reported.

Since 1881 there has been a significant development in the type of buildings erected by employers for their workmen. The prevailing type of house erected before 1881 was the row dwelling; 870 or 48 per cent of the 1,800 dwellings erected before that date were of that type; the double dwelling was the next most common, 423 or 24 per cent being of that type. The proportion of the row type of dwellings erected declined somewhat irregularly from that time to the present, so that at the time of the survey this type formed 15 per cent of all company dwellings. It is that of 3,547 houses erected by employers in 1916, 1,529 or 43 per cent are of the row type, and of 1,177 erected in 1917, 375 or 32 per cent are of the row type. The prevalence of the row type of house before 1881 is undoubtedly due to the fact that in the early days mine operators erected thousands of one-story frame rows. The increase in row houses in 1916 and 1917 is explained by the fact that the new company developments which were reported as of those years happened to be laid out in large cities where land is high.

The frame structure is the most prevalent style of company house, with brick less than a tenth as prevalent, and all other types of material combined even less prevalent than brick.

The largest proportion of the company houses, 15,672 dwellings or 30 per cent of a total of 53,176 have 4 rooms; a little over one-sixth, 9,413, 5 rooms, and an equal proportion, 9,127, 6 rooms; that is, a little over two-thirds of all company houses are 4, 5, and 6-room dwellings. There are 160 1-room dwellings, but this is less than 1 per cent of the total.

The 4, 5, and 6-room dwellings are therefore the typical size company houses. Of 17,643 four-room dwellings, 30 per cent rent for less than $5 a month; 40 per cent for less than $6; 58 per cent for less than $7; and 76 per cent for less than $8. Of the 5-room company houses, 63 per cent, and of the 6-room houses 43 per cent rent for less than $8 per month. Considering all company dwellings, 69 per cent rent for less than $8 a month. It is then quite conservative to say that over two-thirds of all company houses are well within the means of the low paid unskilled laborer. For while no study has been made of the actual relation between wages and rent, two employers report that they limit rent to a definite percentage of wages; namely, 25 per cent in one case and 10 per cent in the other. Assuming either of these ratios to be the correct one, the estimate that two-thirds of all company houses are within the means of the low paid worker is not exaggerated. It presupposes on the basis of the high ratio of 25 per cent earnings of about $32 a month.

In view of the rentals charged it is not to be expected that a large proportion of all company houses should have such modern conveniences as bath, water-closet, sewer connections, and water or lighting systems. However, considering all company houses for which the facts are reported (47,580), 8,238 or 17.3 per cent are equipped with bath, water-closet, sewer or cesspool, water system and gas or electric light, some of which also have laundry tubs and hot water connections; 859 or 1.8 per cent have bath, water-closet, sewer or cesspool or a water system; 1,917 or 4.0 per cent have water-closet, sewer or cesspool, running water inside, and gas or electric light; 2,534 or 5.3 per cent have water-closet, sewer or cesspool and running water inside; 180 or 0.4 per cent have bath, running water and gas or electric light. Gas or electric light and running water inside are found in 2.010 or 4.2 per cent of all dwellings. There are no modern conveniences except running water inside in 2,593 or 5.4 per cent of all company dwellings, and no modern conveniences except gas or electric light in 10,600 or 22.3 per cent of all dwellings. On the other hand, the largest proportion of all company dwellings, 18,649 or 39.2 per cent have no modern inside sanitary conveniences. The facts as to sanitary equipment are not reported for 5,596 or 10.5 per cent of all buildings included in the survey.

Materials Used

While nine-tenths of all company houses are of frame construction several employers are experimenting with construction materials of concrete and hollow tile in various combinations. A large anthracite coal operator in Pennsylvania built a group of 20 double houses (40 dwellings) of poured concrete without air spaces in the walls; but he has not found them as successful as he had anticipated. They cost more than the same style and size of brick house, while some of the tenants report them as damp, and to an observer they appear rather cold and forbidding on the inside. The plaster has peeled off in spots, and where pieces have broken off the stair coping, which is also of poured concrete, it would seem difficult or impossible to make repairs. Hollow tile with stucco exterior is being used successfully in a mining town in Arizona, and variety is being obtained by tinting the stucco various colors. A company in Pennsylvania in its housing development has experimented with the hollow wall form of concrete construction, but the development is too recent to justify an opinion as to its success. Two large manufacturers have built some 3,000 odd houses of the ready-built type. While this type makes for rapid construction difficulty was experienced in matching parts; which may have been due however, to confusion growing out of a hurry arising from the urgent necessity to provide accommodations at once.

Cost of the Typical House

The cost of a few typical company houses in different sections of the country is of interest. Costs as here given include only the cost of the house, not the out-buildings or land and street improvements. The costs today would be much greater than those given here owing to increased wages and cost of materials; and the increases would vary with the type of materials used and the locality.

The double mine type of house in Pennsylvania and West Virginia ranges from $600 to $800 per dwelling or the renting unit of 4 to 5 rooms; a similar type of house of 5 rooms per family erected in Michigan, in 1907, cost $825; the double frame cottage in the New England states cost, in 1914, from $800 to $1,000 per dwelling.

The four-room miner's frame house in Ohio cost $600 to $800; similar houses in Colorado cost, in 1914, $750. A group of 40 was built in 1914 in Colorado for $700 each. A cement block house of 4 rooms in Colorado cost $650 in 1900. The simple four-room house on open piers built in the South cost $670 in 1917; a group of 35 four-room two-story frame houses built in northern Minnesota cost, in 1910, $750 each.

A four-room, one story one-family house of the ready-built type cost $1,500, in 1913, in Virginia; a five-room ready-built house of a similar type erected in New Jersey cost, in 1915, approximately $1,200. A four-room ready-built house erected in 1914 in Pennsylvania by a certain railway equipment company cost $1,500. A four-room one-family frame bungalow, neither ceiled nor plastered inside, but having inside sanitary conveniences, erected by companies in Arizona, cost $1,000. These costs of typical four-room company houses are cited merely by way of example, but even these few examples show how widely costs vary and how dependent they are upon local conditions and changes in the material market.

Maintenance of Houses and Surroundings

Good company developments are found to be greatly marred by a failure to maintain the houses and their surroundings properly. Relatively poor housing accommodations are redeemed to an extent by a good system of upkeep. Employers are practically one in their belief that problems of maintenance are the most important ones for the success of any housing undertaking. The old style type of miners house in the anthracite and bituminous regions of Pennsylvania is being rejuvenated, as it were, by repainting and repair, construction of whitewashed fences, and the planting of trees and shrubbery, and the encouragement of gardening. Streets and alleys and backyards are kept clean by a system of garbage and sanitary collection.

A steel car company in Pennsylvania has supplied all its 200 single houses for the better paid class of workmen with a garbage can at a total cost of $175. At the rear of the alternate rows of houses for the immigrant labor it has placed a garbage and rubbish box and all waste rubbish is to be dumped in there. When the boxes are cleaned each week lime is put in them as a disinfectant. This is but a typical case. The system of garbage cans and rubbish boxes furnished by the employers is found indispensable in the mining towns of the Minnesota iron ranges, in the company towns of Alabama, in Arizona and elsewhere.

It is the policy of about a third of the companies included in the survey to encourage gardening by means of prizes, and it is found that once gardening has been started in this manner it tends to maintain itself. Another method of encouraging gardening is by the distribution of handbooks on the subject. A few employers report the giving of prizes a failure, and suggest instead the giving of a flat bonus to each tenant who keeps a garden of a specified standard.

As a preliminary to the inauguration of successful gardening it is usually necessary to erect fences; for almost inevitably it is found that a tenant who starts to garden will build a fence about his premises. Where the tenant is left to make his own fence a nondescript makeshift is the usual result, a fence made of the odds and ends of loose boards, pieces of corrugated iron and waste wire as a rule. Uniform company fences on the other hand add much to the appearance of a town.

Some companies, however, are able to enforce a rule of no fences; and when that is the case all yards are kept well turfed and mowed, and provision made for supplying trash and garbage receptacles which are regularly removed and emptied.

The repair and upkeep of company houses is generally committed to the repair department of the establishment, with the result that house repairs are given secondary consideration to general plant repair. Several companies, on the other hand, have found it better to keep a separate repair department in connection with their real estate or housing department; the houses are then given the proper attention, regular men being charged with the duty of repair and maintenance.

The Housing Investment

With few exceptions the housing work is conducted as a general part of the employer's principal business; the accounting and administrative work connected with it is done in the general office of the employer and by a staff which has other duties to perform. In some instances a special department usually termed the land department or land agent is created for the conduct of the work. Where the housing is conducted by a subsidiary company the housing enterprise usually becomes more elaborate and is found more generally in connection with a model village development.

Although the largest proportion of company housing is still done directly by the employer as a general part of his business, there is discernible a slight tendency toward the indirect method of the subsidiary company or the real estate company controlled by stock ownership of the employer.

Practically all employers rent their houses to their workmen. The practice of selling is finding its limited vogue among the more highly specialized and permanent industries. Out of 213 different employers canvassed in the inquiry, only 33 reported the practice of constructing and selling houses to their employees. Mine operators generally do not encourage their employees to buy houses because the industry is not permanent, as mines gradually become worked out after a period of years.

Of the employing firms scheduled, only one encouraged the employees to take out a life insurance policy to guarantee the payment of his loan of the purchase price in the event of death prior to final payment. The plan is optional, yet about 51 per cent of the purchasers have taken advantage of it.

Three companies have been found which are trying to prevent speculation in the houses which they sell to their employees. One large manufacturer in Ohio aims to have the speculative increase accrue to the employee. This is done by basing the monthly installments of the purchase price for the first five years on the initial real estate value of the property. This value is placed at 25 per cent above the actual cost price to the company; and if at the end of the five years the employee is still with the company there is returned to him the difference between the real estate value and the cost value of the house. All payments after that date are made on the basis of the actual cost price of the property.

Another method of preventing speculation is to require the erection within a limited time, usually less than a year, of a house upon the lot sold to an employee. This method is in fact, however, only a temporary limitation against speculation.

Cost of Company Housing

To the employer who expects to undertake housing work the first consideration is usually the cost. On this point the survey is able to throw some light, sixty different companies having reported the total original cost of all company houses, not including land, as $15,948,502. This amount is 28 per cent of the average annual pay-roll of these companies for a five-year period (1911–1915). The houses accommodated 42 per cent of their employees, a factor which must be taken into consideration in comparing the cost of the houses with the pay-roll. The proportion which the cost of the houses forms of the pay-roll (28 per cent), is to the proportion of employees housed (42 per cent), about as 2 is to 3. For example, if an employer proposes to house one-half of his employees, he may expect to invest in houses, not including land, an amount equal to one-third of his annual pay-roll; if he proposes to house all, he will need to invest an amount equal to two-thirds of his annual pay-roll. Separate industries show considerable variation because in some localities climatic conditions require a more substantial construction, or because better houses than the average are sometimes built. Thus for one company in a group of miscellaneous industries, where a better class of house has been built having modern conveniences and considerable architectural variety, the total original cost of the company houses is 52 per cent of the annual pay-roll for a five-year period, while only 28 per cent of its 1,800 employees are housed. This proportion is almost the reverse of the average shown above for the 60 companies investigated, taken together. These figures should, of course, only be taken as a rough approximation of relative costs.

On his housing investment the employer gets a gross return of 8.3 per cent, a ratio based on the original cost of all houses as reported by 60 different companies. The total original cost of the houses was $15,126,125. Reports from 8 different coal companies in Pennsylvania show a gross return of 11 per cent on a total inventory value of $2,855,912. In calculating these percentages, average annual rent receipts for a five-year period (1911–1915) have been used. The gross returns received by companies in different sections of the country and for different industries varied considerably, e. g., from a maximum of 20 per cent on company houses of certain mining companies in Alabama, to 6.2 per cent on the houses belonging to 5 steel companies in Pennsylvania and Ohio.

The cost of housing to the employer is approximately $383 per employee housed, if calculated on the base of the original cost of the houses alone, not including land or improvements. Those companies, however, which reported an inventory or estimated present value of their houses show a smaller cost—$361—per employee housed. Both these figures are extremely low, even when consideration is taken of the fact that employers do housing on a large scale. This low cost reflects in a measure the relatively low grade of housing furnished in all but a comparatively few cases.

Why Employers House their Employees

Employers undertake to house their workmen primarily because there is a dearth of houses. Only in two industrial villages were there found vacant houses at the time of this survey, and that was because the houses were obviously bad. Aside from the immediate necessity for more houses, other reasons moved employers to maintain at least a nucleus of company houses. There was first the need of certain emergency men near the plant for the sake of added safety (as in mine operations in case of fire or accident); the desire for a stable supply of labor, married men particularly; and the belief that a more efficient labor force would thereby be secured.

Some of the reasons given are as follows: It pays as a business proposition; stockholders interested in real estate company which built the houses; property bought for plant extension (which shows the housing enterprise was merely an incidental feature); feeling that employer owes employee something; as an experiment; to prove out factory village plan as a new theory; to promote general welfare of mankind, and to obtain a supply of foreign labor.

It is extremely difficult to say whether employers secure all the ends in question. Certainly they do not supply nearly enough houses for all their labor force, as only one-third of their employees are accommodated in company houses. The cotton mills of the South house relatively the largest proportion of their labor supply, namely 71 per cent, followed by soft coal mine operators in all sections of the country, who house 62 per cent. The lowest percentage housed, or 15.9 per cent, is in the copper and gold mining regions of the Southwest. This is due to the fact that the unskilled Mexican laborer is not generally housed by the companies in this region.

While 165 out of 213 companies state that their practice is to supply houses to all classes of their employees, preference is naturally given to men most difficult to retain, that is, the higher paid skilled workmen. No definite data are available to show what proportion of each particular class of labor is housed in company houses.

Practically all companies state that they are satisfied with the results of their housing work; only a few report an unfavorable experience, a common complaint being that the housing business is unprofitable. There were received altogether some 350 replies to the inquiry asking for the results to employers of their housing work. Arranged according to the frequency with which they have been noted, the results of company housing are declared to be as follows:

1. It secures a better class of workmen;
2. It gives greater stability in the supply of labor;
3. It results in reduction in the number of floaters;
4. It means better living conditions;
5. It secures greater loyalty from employees;
6. It makes more contented and more efficient workmen;
7. It affords better control of the labor situation, that is, hire and discharge with greater freedom;
8. It attracts married men;
9. It gives greater regularity of employment;
10. It provides a better house for less money for the workmen;
11. It brings profit to the company;
12. It facilitates part time;
13. It serves to advertise the company and keep it favorably before the public.

From this statement of results it is quite plain that housing is probably one of the most important factors in maintaining a steady supply of labor, that is, it is a factor in greatly reducing labor turnover, a problem which is now receiving a great deal of attention from employers.

One of the largest operators in the coke region of Pennsylvania and another in the steel industry emphasized the advantages of company houses during a period of depression. During such a contingency the employer is in a position to reduce or rebate rent to his men and thus keep them available as needed. The reduced rent will offset the reduced earnings; and a workman with an assured shelter over his head will be particularly loath to leave during dull times in the industry. Furthermore, the keeping of a nucleus of men at hand, it was noted, facilitates a quick start upon resumption of activity.

Other Advantages

The same operator in the coke region who remarked the benefits of company housing as facilitating part time called attention to one significant result of improved company housing. The company began an extended clean-up campaign about 1908. Since that time there has been an increasing demand for further improvements. Once the tenants have experienced added comforts resulting from clean streets and alleys, removal of garbage and rubbish, new fences, fresh paint and repaired exteriors of their houses, their appetites for continued improvements and maintenance of clean surroundings grow. The exterior improvements provided by the company stimulate pride in the maintenance of the interior of the house on the part of the tenant. A steel manufacturer declares that the foreigners seem neater since the provision of improved company houses. Results of this kind, it should be noted, are not so much related to the fact of company housing as they are connected with the character of the upkeep of the houses, a matter already emphasized.

Conclusions

Company housing is, therefore, not merely a problem concerned with the provision of more houses for industrial employees; it affects not only the fundamental relations of employer and employee, but it also has wide social significance.

Many employers frankly recognize that a social responsibility rests upon them. Through their control of community streets, lights, public utilities, houses, recreational centers, and the industry which supports the economic life of their community, employers are in a position to control the character of the community. The rules promulgated by the employer are readily enforcible as they are backed by authority to discharge from employment.

It is difficult to see how this responsibility can be avoided in a mining town. The isolation of mining towns, the impermanence of many of them, the shifting character of the labor force, the absence of local self-government all cumulate to throw the responsibility upon the employer. In a manufacturing community usually placed near populous centers where community life already exists, and where other agencies are already established to provide community needs, the responsibility of the employer is not so complete. It is therefore not necessary for him so thoroughly to control or dominate the life of the community.

But whether in the isolated mining community or in the populous city center the employer is placed in advantageous position in relation to the housing problem. He knows the purposes which he wants his community to serve and can therefore lay it out with forethought, take advantage of the advice of experts, consult town planners, architects and large-scale builders. He knows how many families he will need to supply with houses; that is, he can gauge the supply of and demand for his houses. He knows the type of labor he will want to house and can erect his houses to supply the needs of that particular class of employees. He can build on a large scale so as to cut down costs.

This survey has shown quite clearly that the employer has had both successes and failures in this work. Too little attention has been given to the layout and arrangement of the company town; there has been a tendency toward uniformity in the type of house and its arrangement on rectangular streets; there has been a failure to study the desires of the workman in the matter of the type of house to be provided. Maintenance has been neglected even where good houses have been originally provided; and restrictions in the matter of keeping roomers and boarders have been almost utterly disregarded.

There is no best type of company house, although the survey reveals that as regards size, the four, five, and six-room house is the most prevalent. The conditions which determine the best type of house to construct are varied: the character of the labor to be housed, native or immigrant, skilled or unskilled, high paid or low paid; climatic conditions, accessibility of material; building costs, and availability of building labor.

Although, then, there is no one best type of house, no one model to be followed, it is nevertheless possible to standardize the interior plans of houses of different sizes which appear to have established themselves as most acceptable. And every standardization tends to reduce costs and to make for rapid construction.

But a standardized interior need not mean uniformity of exterior. And among the ways suggested to avoid it are careful town planning; judicious use of a few curving streets which tend to minimize the monotony of similar houses, as no long vistas are exposed; and introducing variations in the exterior of the houses. One employer, in fact, had a standardized plan for a brick house, for which he had 14 different elevations. This exterior variation may be produced: (1) by alternating the position of houses in relation to the street, as for instance, in the case of a gable house, turning the gables to the street in one instance and the side in the next; (2) by variation in outlines of porches and dormer windows; (3) by alternating houses with different forms of roof — hip, gable, gambrel, or flat; (4) by alternating single and double houses; (5) by various color schemes; and (6) by the use of varying types of material — frame, brick, concrete (poured concrete or block construction) and stucco work upon frame in differing combinations.

No Excuse for Filth and Disorder

And finally, the dreariness of many company towns is remarkably reduced if they are properly maintained and regard had to the uses of vegetation. There should be no excuse for the tolerance of filth and disorder — this is something upon which all employers are agreed.

Touching the evils which arise from the dual relation of landlord and employer, it should be stated that many employers are desirous of avoiding the evils of this relationship as much as possible, and decry all forms of paternalism. This landlord-tenant relationship is being partly obviated by many employers by separating the housing business from the general business, i. e., by organizing the housing under subsidiary companies more or less detached from the principal business. Many model towns are now conducted by subsidiaries of the principal company. The consequent tendency is for the employer to concern himself a little as possible with the landlord business.

Some companies are abandoning the method of collecting rent or paying installments of purchase price by deducting from wages due, or at least are permitting the employees to exercise their choice in the matter. The employee is more frequently given the choice of renting or buying his house from the employer.

Finally there is the possibility, indeed, the desire on the part of some large corporations to surrender the distinctly community functions to the independent control of the community itself. A model mining town in the soft coal region of Pennsylvania was erected from the ground up by the employing company and about a year or two later was turned over to the community after the inhabitants had voted for its incorporation. Another employer, a steel company, left it to the employees to place restrictions upon the property, but in this particular community only a building line restriction was established, and conditions reverted to a state of disorder and untidiness.

Thus there are, absolutely controlled company towns where conditions are ideal, and others where conditions are disreputable. On the other hand there are small industrial towns without any company control, the companies confining their housing activities to a minimum, where conditions of disorder and community slothfulness prevail, others where high ideals and efficient community control exist.

UNION PARK GARDENS

A MODEL GARDEN CITY FOR SHIP WORKERS
AT WILMINGTON, DEL.

THE influx of so many additional shipworkers and their families, to carry out the shipbuilding program of the Emergency Fleet Corporation during the late war, overtaxed and exhausted Wilmington's local housing facilities. Charges for board were high, and adequate conveniences were either lacking or unsatisfactory for skilled workmen and their families, so that it became imperative to provide many additional houses.

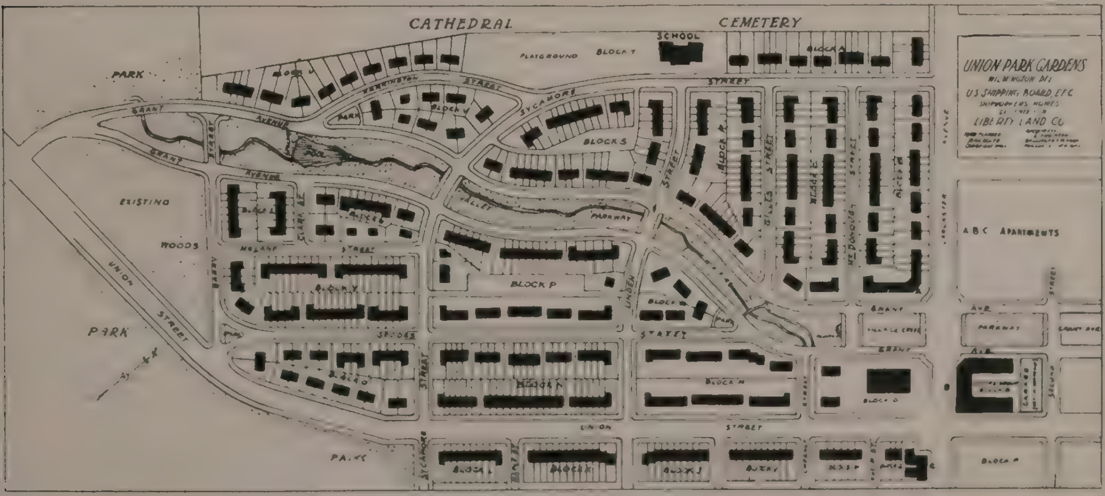
The wide-awake citizens of Wilmington, and particularly their Chamber of Commerce, are to be given due credit for being far-sighted enough to appreciate this situation and for taking the initiative when it became evident that local housing was inadequate to meet the rapid growth and expansion of the existing shipyards as well as the proposed new ones.

The Liberty Land Company of Wilmington was thereupon organized to provide for the housing of the shipworkers of that city. After selecting and obtaining options upon several available and convenient sites, they made their needs known to the Emergency Fleet Corporation, which resulted in the Union Park Gardens development.

On a 58-Acre Tract

The site is located at the intersection of Union Street and Lancaster Avenue, on the outskirts of Wilmington, partly within and partly without the city, and includes about fifty-eight acres of beautiful rolling country possessing many natural advantages. The tract is mostly farmland, one portion of which, adjoining the woodland section to the south which is at present reserved as parkland, is wooded with magnificent trees. A flowing brook, which has been made a special feature of the plan, runs through the tract. To the south there is the parkland previously mentioned. Lancaster Avenue and Union Street are on the north and east respectively, the latter being the main highway to Baltimore and Washington.

Ballinger & Perrot, the architects and engineers, Philadelphia and New York, associated



Plot Plan, Union Park Gardens

Typical Row, Union Park Gardens

with Dr. John Nolen, the well known town planner of Cambridge, Mass., have seized the opportunities offered by the natural advantages of the site and its unusual surroundings to produce an American Garden City of exceptional merit. The site is connected with Wilmington proper and its shopping district by two trolley lines, one on Union Street and one on Lancaster Avenue, the latter giving direct transportation to and from the shipyards of the Pusey & Jones Company, the Harlan plant of the Bethlehem Shipbuilding Corporation and the American Car & Foundry Company, which may be reached in ten minutes by their employees for whom this development was conceived.

Grant Avenue, which at present connects Wilmington's system of public parks, has been continued through the development to the wooded park to the south. It is 120 feet wide, winding with the stream previously mentioned, on either side of which are the roadways. At certain intervals, where main cross streets occur, small but picturesque bridges span the stream.

The town plan of Union Park Gardens, as conceived by John Nolen, has been so arranged as to form a part of the city of Wilmington by continuing some of the present city streets through the tract.

The plans include all the essentials of a thoroughly organized town. In addition to the houses and apartments, there is to be a Community Building and a sufficient number of shops and stores to meet all the local needs.

The tract is of sufficient area to provide for the erection of 506 houses at the present time, leaving a few additional lots which may later be purchased and built upon, after allowing the ground necessary for the apartment houses, stores, Community Building and playground. A site has been reserved for a future school building with generous ground close by for baseball and tennis. In addition, an area, which could not be used to advantage for any other purpose, is to be devoted to allotment gardens for those who desire to indulge in gardening but who would not do so had they to use their own backyards.

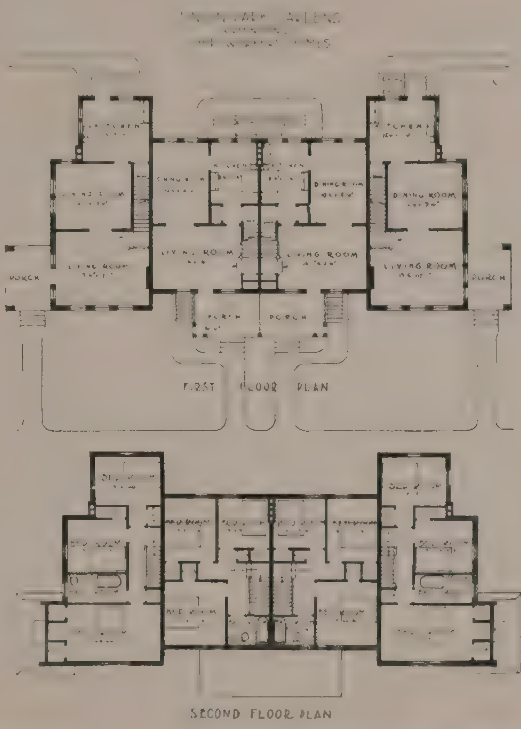
Protecting Land Values

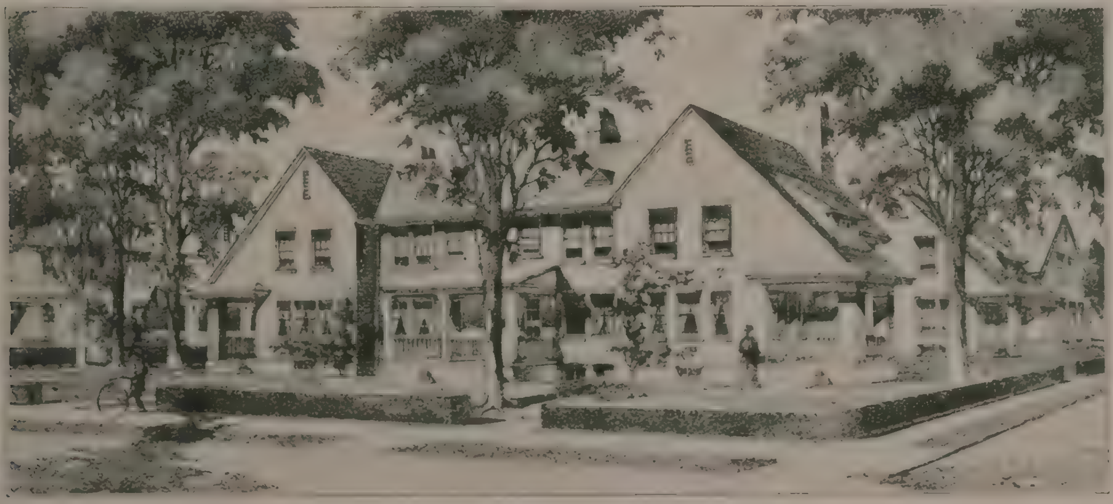
A feature of unusual interest and worthy of special mention is that of the purchasing of adjacent property for the protection of land values created by this new development. Beyond the original limits of the tract and on the far side of Lancaster Avenue there existed a number of disreputable shacks and negro hovels, while on the far side of Union Street the land was unimproved by buildings of any sort. These two tracts were purchased by the National Government because of their vital importance to the project and the limits of the tract accordingly extended to include them.

This procedure enables the Liberty Land Company to secure and maintain the increased property values which they are creating by the construction of this new development, while at the same time preventing the speculative land operator and builder from depreciating the character and quality of the new project by the erection of cheap, unsightly and undesirable row houses, which would unquestionably have occurred. As a result the architects have been able to design the houses, etc., on both sides of Lancaster Avenue and Union Street, thereby insuring their uniformity in appearance.

The Community Building, with its various accommodations, has been provided because it has been found that, in industrial towns to which skilled mechanics and their families are brought from a distance, it is just as essential to provide recreation and amusement for them as to provide adequate and sanitary homes. It makes for the contentment of both the workingman and his family, which is the prime factor in eliminating, or at least reducing to a minimum, the labor turnover which is the most serious industrial problem at the present time.

The Community Building, besides the necessary offices for the management of this development, includes an auditorium, with stage and dressing rooms on the main floor large enough to accommodate 600 persons, in which lectures, moving picture exhibitions or dances may be given. The basement is devoted to game rooms, for pool and billiards, etc., and a smoking room for men and a gymnasium, with locker and shower rooms, having a separate entrance for the use of the boys and girls on alternate days. There are also a children's playroom, a





Four-family House and Floor Plans, Union Park Gardens sewing room and a reading and writing room in the second floor for the women.

Architectural Features

There are 506 houses, including 399 of the group type, 104 semi-detached and three detached. The monotonous uniformity in appearance of the row houses has been carefully avoided. In spite of the fact that the group scheme has been followed generally, charming and attractive effects in the architectural design have been obtained.

Pleasing and diversified architectural effects have been obtained by varying house setbacks, by using broken roof lines, by introducing gable ends, dormers, etc., at certain irregular intervals and at especially important points like street intersections, opposite streets, etc. There are twenty different types of houses, arranged in a great variety of different combinations. Harmony, simplicity and uniformity have been maintained throughout the entire scheme by adhering to one style of architecture, by limiting the number of types of exterior treatment, and by securing effects in mass, proportion and lines, rather than by the introduction of useless and expensive architectural embellishments. The groups average seven houses and in only one or two cases do they exceed ten houses in number. Practical knowledge, common-sense requirements, good taste and economy have been employed in designing these houses to make of them essentially workingmen's homes, to be built economically to permit of their purchase within the means of the skilled worker for whom they are being erected.

The houses, commonly known as "Airlight" houses, are mostly of the six room and bath type, with a front porch, living room, dining room and kitchen on the first floor, and three bed rooms and a bath on the second floor. There is an ample attic space above the bed room ceilings, which is well ventilated front and back to keep these rooms cool in hot summer weather. This attic space has no living accommodations but may be used for storage. There are a few houses of the 4-room type, having a front porch, living room, and combination kitchen and dining room on the first floor, and two bed rooms and a bath on the second floor. The bath room opens upon the second floor hallway and not upon bed rooms. The plans call for ample closets in all living rooms and bed rooms, with both gas and electricity for illumination as well as gas for cooking, warm air heat and modern plumbing and fixtures. Laundry trays are located in the basement, conforming to the local custom. While provision has been made for cooking and the heating of water by gas, a hearth and the necessary flue have been included in every kitchen so that, if desired, a coal range may be conveniently installed at any time. Every house has a full basement.

Realizing that the houses would be larger than desired or needed by many married workmen without children, it has been necessary to provide a limited number of apartments, consisting of living room, dining room, kitchen, bed room and bath on a single floor. There are forty such apartments, some of which have been located over the six shops and stores on the first floor. Some of the higher grade apartments have been placed at the intersection of Grant and Lancaster avenues, facing the Village Green. Public utilities, including sewers, water, electricity and gas, are being extended from Wilmington proper.

The houses were to be leased at reasonable rents during the war, and arrangements are now being made whereby they may be purchased on convenient terms.

HILTON, VA., A GOVERNMENT-BUILT WAR EMERGENCY TOWN

THE late war put the housing problem forcibly before us in its entirety. In the case of munitions of war, and of ships, it was we, the people of the United States, who were investing the money, who were furnishing the labor, and who were vitally concerned — profit, safety, and honor — in the rapidity and amount of production.

We are at the beginning of the problem; we have not solved it; but we have at last, and after heartbreaking delays, begun to appreciate the vital connection between living conditions, good citizenship, and industrial efficiency, and we appropriated Government money to provide — among other things — necessary housing for war workers in munition plants and shipyards.

The Newport News Shipbuilding and Dry Dock Company, as long ago as October, 1917, saw that Government assistance in war housing developments would be absolutely essential, and therefore would some time be provided. The company accordingly employed Mr. H. V. Hubbard, of the firm of Pray, Hubbard and White, as landscape architect, and Mr. F. H. Bulot as engineer, to prepare a scheme for the development of land for 500 houses to serve the shipyard workers, and Mr. Francis Y. Joannes was engaged as architect. The company hoped, as proved to be the case, that when Government loans for such work finally became available the plans would be so far along that they might be accepted without great changes and quickly put under construction.

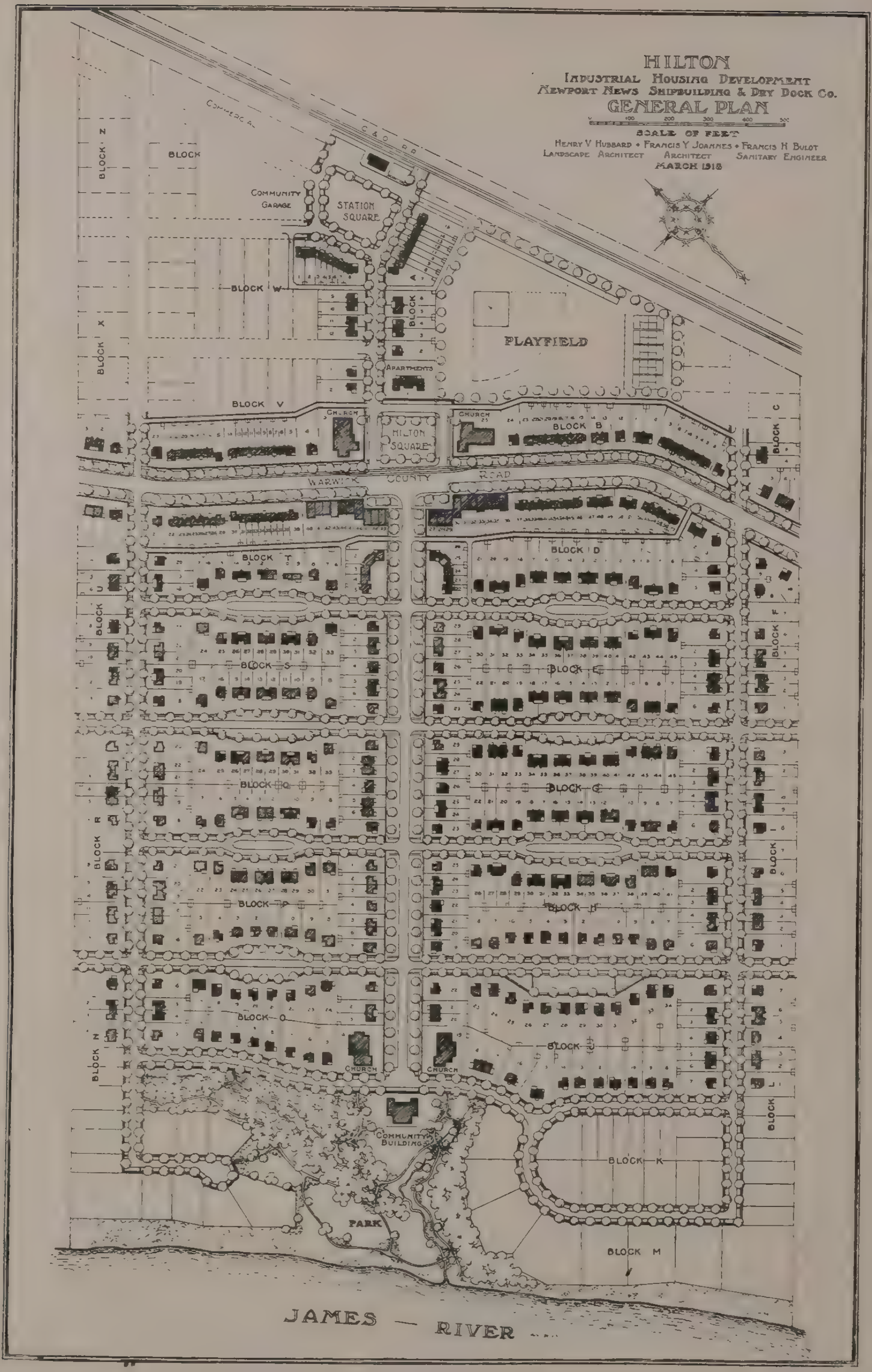
This co-operation of architect, engineer, and landscape architect and town planner is an ideal one, reflecting as it does the three great requirements of any such development: beauty and utility of houses and public buildings; adaptation of public utilities to use, to local conditions, and to considerations of economy; and beauty of ground and adaptation to topography and to the life and growth of the community.

The piece of land chosen was the nearest to the shipyards which could be obtained of sufficient size and quality. The taking up of land for other governmental purposes forced the site for Hilton about two miles from the shipyards, but both railroad and trolley service make it reasonably accessible.

Having worked out a tentative plan for the new town on the basis of all the local conditions and the known preferences of the workers as to lot sizes, and so on, it was possible to estimate roughly what would be the cost of this town, "complete and ready to serve," and by much laborious fitting and changing it seemed to be possible in this case to evolve a plan which would produce the necessary accommodations for the possible price, without being obliged to sacrifice decency, permanency, convenience, space, sanitation, or — we believe — some noticeable degree of beauty. There is a minimum figure below which it is not economy to reduce cost per cubic foot for a house. There is a still more irreduceable minimum in water-supply and sewerage. Roads, however, may be sometimes opened but not paved, parks may be set aside but not developed, thus justly postponing until later times the payment for some of the things which are to be enjoyed by later generations.

Topography of the Townsite

The land chosen is practically flat from the railroad to within a short distance of the water. Along the shore it is broken by the steep-sided valleys of the two little brooks shown on the plan. The scheme is a modified gridiron, based on a main axis from the town square on the main highway to the community building on the



Hilton Village.—A Housing Development Near Newport News, Va., for the Newport News Shipbuilding & Dry Dock Co. Harry V. Hubbard, Landscape Architect; Francis Y. Joannes, Architect; Francis H. Bulot, Sanitary Engineer.

little hill between the brooks, looking out across the James River. The minor streets, running parallel to the shore, some carrying through to future development north and south, some capable of being dead ended, are treated with little neighborhood open spaces for interest and additional feeling of room. The railroad station faces on a little square of its own, connected directly with the town square. A community garage is next the railroad station square.

Two churches, an apartment house and the few stores surround "Hilton Square," and two more churches, with the community building, give importance to the river end of the broad central street.

The land next the river, divided into larger lots, is held to be used for houses by those who can afford to spend more than the average and who will probably buy and build for themselves. The park occupies the rough land in the brook bottom in front of the community building. The playfield occupies the land on the outskirts of the development next the railroad and south of "Station Square." Neither park nor playfield needs much expenditure at once. They are large enough to serve several times the population at present expected, and the future population may do its share of paying for their development.

The lots vary from 118 to 130 feet deep, since many of the people want gardens, the streets are 50 or 100 feet wide, but the roadways, excepting Warwick County road, are but 20 and 24 feet wide, because they are, and should remain, local streets, with no possible press of traffic.

Types of Houses

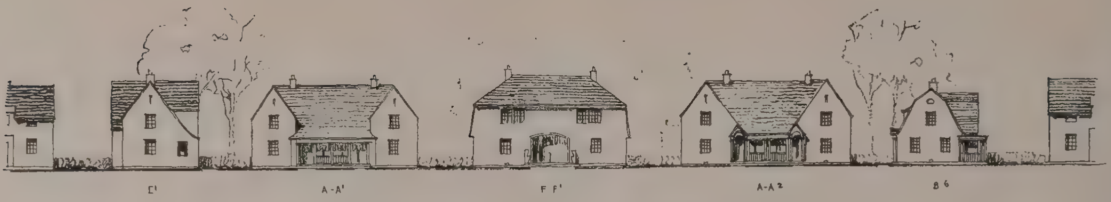
Having arrived at an arrangement of streets and blocks which promised a reasonable and economical result and an opportunity for placing a maximum number of dwellings without exceeding the preferred population per acre, the type, size, and location of buildings and their effects upon lot-sizes became the primary considerations. A rough schedule of quantities of four-, five-, six-, seven-, and eight-room houses was agreed upon, and preliminary sketches were made for each of these types of houses. It was deemed desirable in order to avoid the "pill-box" effect of a large group of small houses to introduce a certain number of two-family houses in such a way as to solidify the general appearance of the village and endeavor to break up this inevitable "pill-box" effect. In laying out the houses, the possibility of forming double houses by combining two single houses was constantly borne in mind, but a peculiar local condition which required the placing of the chimney near the center of each dwelling, afforded an opportunity not possible in the usual housing developments of combining single houses back to back as well as side to side, and some surprisingly interesting compositions resulted. Naturally this afforded a means of increasing the number of types of houses without multiplying to an unreasonable degree the quantities of details and material sheets required for carrying out the work. In placing houses on the property plan it was found that the plans of practically all single houses would have to be reversed, thus creating again a number of new types.

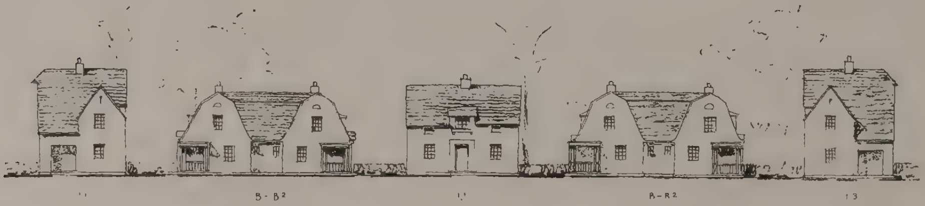
The lot subdivisions were not completely determined until after the plans of the houses had been settled, and where crowding could not be avoided otherwise, the type of house was changed so as to maintain the established minimum spacing of sixteen feet between houses having the same setbacks from the street.

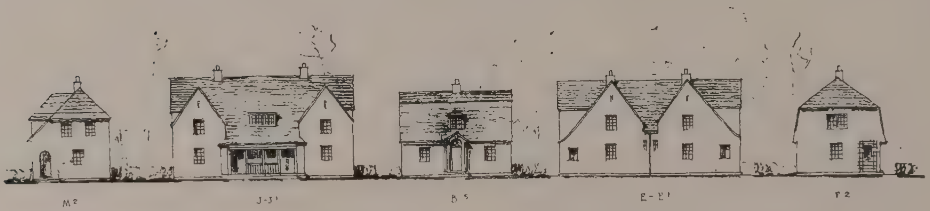
All Houses of Frame Construction

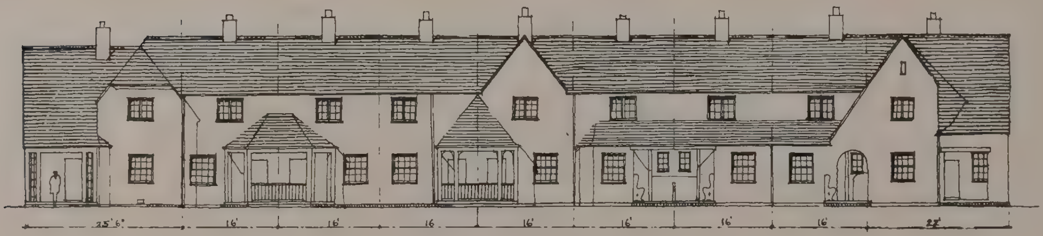
It was practically decided at the outset that inasmuch as the country was in or adjacent to the Southern lumber district, all of the houses should be of frame construction.

The exterior character of the houses was determined on a basis of permanency and upkeep, and the resulting schedule of exterior treatment shows a preponderance of stucco with a smaller percentage of houses of siding or shingles. All of the houses will have slate roofs. As the climate does not make furnace heat necessary, no cellars are excavated, but, in order to take care of wood and coal supplies









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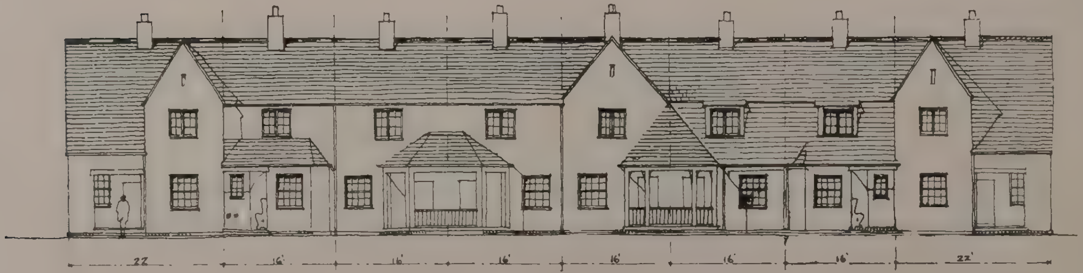

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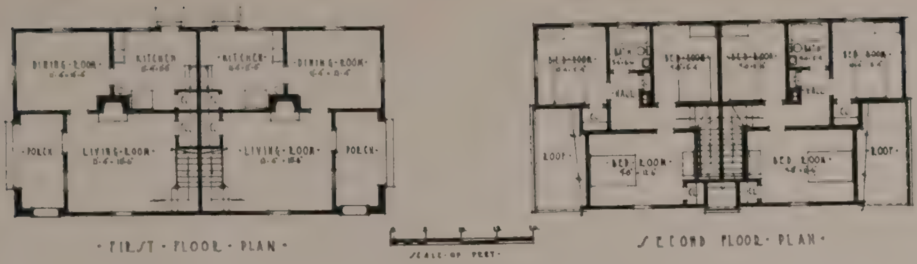
Typical Elevations of Street Fronts and House Rows. Hilton Village.—Francis Y. Joannes, Architect.



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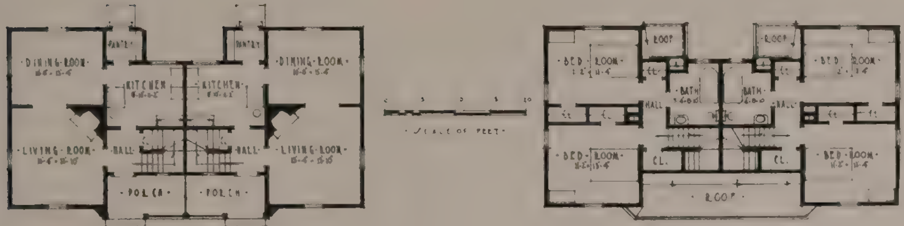

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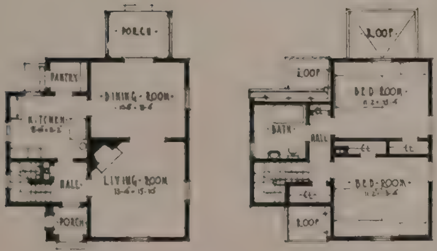

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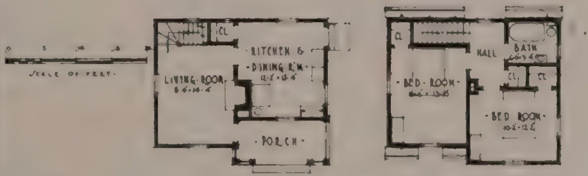

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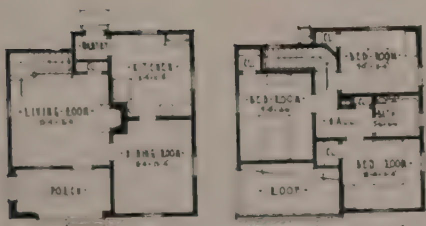

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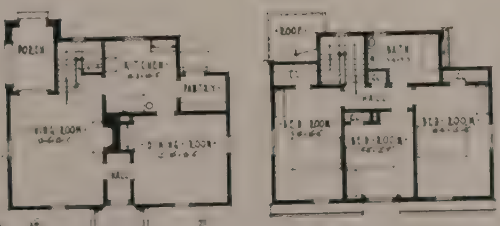

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SIX · ROOM · HOUSE · TYPE · L1 ·

Typical House Plans. Hilton Village.

Corner of Park Court, Hilton Village.

and garden tools, a small outbuilding is provided for each family. In order, again, to avoid the dotting of the landscape with what might appear to be small dog houses, these are combined, wherever they can be, in twos, threes, and fours, thereby improving the general appearance with a resulting economy in construction. These outbuildings are made large enough to house a small automobile.

The contractor for the construction work was selected early, and a sufficient number of estimates were made of the cost of the various types of houses. By comparing the total cost with the wage schedule of the prospective tenants, it was found that the range of rents or sale prices was safely within the amounts which the different types of skilled labor could afford. To make an adequate provision, however, for the low priced, white, semi-skilled mechanic or young apprentice, married, but with few or no children, it was therefore determined to place a row of terrace type of house along the Warwick County road, which is an improved thoroughfare, probably less desirable for the better type of development. These row houses are four rooms each, a combination kitchen and dining room being provided. The end houses of each row are, however, five- and six-room houses, affording a better architectural termination and a further variation in accommodation. This accomplished a further result of again solidifying the appearance of the village, particularly in its aspect to one passing through the village by way of Warwick County road. At the Village Green or Square there are allotments for twenty stores having small apartments in the second story. Provision is also made in the store groups for a motion picture theater, billiard hall and bowling alley, and a hall for lodge meetings, religious meetings, theatricals and other community activities. Four lots have been set aside for churches, and these will be assigned to the denominations which may require them, the financing and building of these being left largely to the community. Provision is made for a grade school, which has combined with it a meeting room, gymnasium, domestic science room, and other community features.

Because of the fact that the major part of the passenger transportation will be furnished by the extension of the Newport News trolley service, nothing more than a substantial shelter will be constructed for the railway station in connection with the Booster Station for water service until such time as traffic demands develop.

Eliminating "Sets" of Plans

In preparing working drawings and details it was determined to place all of the plans and elevations of each type of house on one sheet, and all of the details in connection with each type on single sheets, so that a foreman could be given a single sheet containing all the information he required to construct the house and not be hampered by the loss of single plans or elevations from "sets" of prints prepared in the usual way. A single specification covers the work on all dwellings. The dimensions of all dwellings are based on market sizes of framing lumber, the story heights being established on the basis of 16-foot studs cut 8 feet 5 inches and 7 feet 7 inches. This cut of studding would not have been an economical one except for a wholesale operation such as this. The contractor practically established a "pre-cut" house proposition on the site, all joists, studding and framing being cut to lengths, properly piled and issued as required in accordance with material schedules for each house. The bulk of the material was ordered by the Construction Division of the Army on bills of materials furnished by the contractor. For certain items orders were placed directly by the owners as agents of the United States.

Preliminary drawings and studies were begun on December 24, 1917, and actual construction work began early in May, 1918. All matters pertaining to design were supervised until the middle of April by the Committee on Industrial Housing, Council of National Defense (afterward the Housing Bureau, Department of Labor). After that time the supervision for the Government was cared for by the Housing Division of the United States Shipping Board.

Apartment Buildings

Another development consists of four apartment buildings, four stories high, of the open stair tenement type, each building containing

Community Hall and the School, Looking Toward Newport News and Shipyards, Hilton Village eighty-four apartments of two, three and four rooms each. These are erected within the city limits, near the shipyard, and form a very important adjunct to the village development in that they provide immediate quarters for new workers who might not be able to take a house and furnish it before knowing that they were going to remain. A place is also provided for the young married mechanic who can set up housekeeping in two or three rooms and later, when his family grows, he will naturally gravitate to the village for larger quarters and surroundings. Floaters are also taken care of, and, as rents are collected weekly, not more than a week's rent should be lost. These buildings will contain a general store, drug store, kindergarten, restaurant, men's club, and possibly a branch bank and branch library.

On Warwick County Road, Showing H House and Row No. 8, Hilton Village.

HOUSING AND THE LAND PROBLEM

(From the May, 1918, Review of the United States Bureau of Labor Statistics)

By LEIFUR MAGNUSSON

THE most important problem connected with the housing question is the land problem, namely, how to increase the available supply of building land, and how permanently to keep the price of it within the means of the workingman.

Employers in this country have attempted to solve the problem by moving their establishments from the congested urban centers to outlying rural and semirural districts where land is available at more moderate prices. As evidence of this movement of industry the United States census of manufactures shows from census to census an increasing proportion of the population, the number of establishments, and the number of wage earners outside of the limits of certain metropolitan districts which are in reality single industrial areas. Furthermore, a recent survey of company housing undertaken by this bureau shows that company housing developments are either new town developments or are located in the suburbs of larger cities, indicating the extent to which industrial decentralization underlies company housing. The primary reason pointed out by employers for this movement away from the cities has been a desire for more land as well as cheaper land, emphasized by them in such expressions as "lower taxes, lower rentals, and avoidance of congestion," while community benefits naturally flowing from more land and cheaper land are expressed as a desire for more light and air and quieter surroundings.

Growth of Speculative Profits In Company Towns

Employers admittedly have not solved the land problem in connection with their housing enterprises by merely migrating from the city to the country districts. The study which the bureau made of company housing shows among other things that there has been only slight attempts on the part of employers as a whole to control the uses to which land may be adapted by careful town planning, that there has been little or no positive action taken to prevent overcrowding, and that no method has been devised either wholly or partly successful in controlling speculation in company towns. Some employers, in fact, have encouraged the element of speculation in offering their houses to the workman. Possibilities of the future growth of the company town are pointed out, "whether you buy to hold for an increase, or to build a home to live in or to rent." The buyer is lured by "$3 cash and $2 per week until paid, no interest, no taxes, for three years."*

While in general increased land values in company towns have not been reflected in increased rents, such increases in land values have naturally occurred in some company towns. An instance in point is Morgan Park, Duluth, Minn., which has been developed by the United States Steel Corporation. The land was originally virgin land, having only an agricultural value. In 1906 the assessed value of 1,250 acres within the area purchased by the steel corporation was $29,500, or $23.60 per acre, according to the records of the office of the tax assessor of the city of Duluth, Minn. As land is assessed by the city at 40 per cent of its "full and true" value, the value per acre at that time was probably about $59. Of the approximate 190 acres in the townsite of Morgan Park, the 141 acres which had been improved by the end of 1916 have been assessed at $720 per acre; and the additional 49 acres improved in 1917 have been assessed at $1,000 per acre. This would make the average assessed value of the actual 189 acres for which the figures apply about $791 per acre, or a "full and true" value of $1,975 per acre at the present time. This is $375,250 for the whole tract of 190 acres comprising the town site. However, it should be stated that thus far much of this value is the result of improvements put in by the Morgan Park Company.

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*On the other hand, it is only fair to point out that in the majority of cases speculation in land has not as yet generally developed in company towns because of the prevailing practice of employers to rent and not to sell land and houses to their workmen. Rents are generally low and have not been increased for a period of years; in fact in some instances it would have been desirable to increase rentals and to improve the surroundings and general maintenance of the property with the increased return.

"Unearned Increments" of Two Towns

Private investigators have shown quite definitely in two company towns — Gary, Ind., and Lackawanna, N. Y.— which were intensively studied for that purpose, the amount of "unearned increments" which have been created in those towns.*

In Gary, Ind., the price paid for land per acre averaged about $814. The total and final cost, therefore, of the 9,000 acres bought there by the United States Steel Corporation may roughly be stated at $7,200,000. The area in Gary which was not bought by the corporation was 9,749 acres. A liberal estimate of $75 per acre in 1906 has been placed upon this less desirable land. The total cost of the latter is therefore $731,175. This would make the value of the total land area of Gary approximately $8,000,000 at the time of the purchase by the Steel Corporation in 1906. The value of this land in 1915, as ascertained from its assessed valuation, which is about 20 per cent of its actual value, was about $40,020,725. The value of the Steel Plant yards should be deducted as the steel company cannot realize any increase in the value of these. Thus the value of the townsite of Gary, Ind., in 1906 was $6,414,455 and its selling value in 1915, $33,455,900, an increase of $27,031,445.

To arrive at the unearned increment, however, certain deductions must necessarily be made for values which have been created or added to the land since 1906. These include (No. 1) expenses of layout and administration by the Gary Land Co., (No. 2) advanced payment of taxes or non-revenue producing property, and (No. 3) local improvements. Interest has not been deducted because the ground rents have been assumed to represent a fair return upon the original outlay; and another factor not considered is the effect of the price level upon the increment. Some of the increase has been due to a decline in the purchasing power of money, the wholesale price index of the Bureau of Labor Statistics* standing at 88 in 1906 and 100 in 1915, or an increase of 14 per cent. Considering all these allowances, with the exceptions noted, a deduction of $5,225,713 is made by the investigator from the apparent increase in value of $27,031,445. "The amount of the increment which might have been conserved is thus found to be $21,805,732," an amount which, it is concluded, errs on the whole in the direction of reducing the unearned increment.

Improvements Raise Land Values

At Lackawanna, N. Y., near Buffalo, where the Lackawanna† Steel Company created a new city on vacant land in 1899, the land was worth not over $770,000, but the steel company had to pay $1,407,000 for the 1,438 acres which it purchased. The remaining 2,414 acres (also within the city site) were estimated as worth $1,279,000. The total value then was $2,686,000. If the plant land on which no speculative value can be realized is excluded the value was $1,983,000.

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*The studies in question were made by special investigators for the New York committee interested in conserving land values for community purposes. One of these studies has been printed: "The Unearned Increment in Gary (Ind.)," by ROBERT MURRAY HAIG. (Pol. Science Quart. N. Y. Columbia University Press, March, 1917.)

*Bulletin No. 200, P. 13.

†A Memorandum to the Steel Corporation: "A Plan for the Conservation of Future Increments of Land Values of Ojibway and for Conversion of the Same into Additional Revenues for Community Purposes." For private circulation. The chairman of this committee is Lawson Purdy, head of the department of taxes and assessments, New York City, and its secretary is Richard S. Childs, general manager of the Bon Ami Co., New York City. This memorandum has been used by the Bureau of Labor Statistics by special permission.

Lackawanna is a city of over 14,000 population and the value of the townsite land is now estimated at $9,016,000, leaving a net increment of $6,788,000, which has gone to private owners and speculators.

Thus company-controlled towns, no less than all other cities, have suffered from the land speculator who withholds land from the market until such time as an effective demand shall give him the price he asks; and the population of the company town again faces the problem which it faced in the congested city — namely, how to prevent or minimize the dissipation of land values to private land owners, and how to secure the greatest amount of social return in terms of health and recreation and better community surroundings.

Plans for the Diversion of Land Values for Community Purposes

In order to secure the ends in question it is necessary to devise new methods which have not yet been tried out in housing enterprises except to a limited extent. These methods, however, involve no new principles, as will be noted from the description of them.

Improved Company Housings.— Directly, or indirectly through a subsidiary or controlled company, the employer acquires land or uses plant land, and constructs houses for his employees. He has the advantage of securing land in outlying districts at its agricultural value. Control of his labor, stabilizing it, and securing a steady supply of labor, and not speculation are to be the objects sought. There is also the advantage of wholesale operations. The employer may rent or sell his houses. If the employer rents his houses he may keep his rents moderately low, or he may charge average prevailing rentals and use his returns to improve his property and secure certain social and community benefits to his employees. If he sells, he may do so at cost, plus interest, and on favorable terms, thereby attracting his employees. He may prevent easy speculation by a system of selling for restricted usages, recognized as cumbersome, however, and difficult of execution. Only by a system of permanent ownership or control, adoption of the principle of limited return, and application of rentals to community purposes will he be able to divert the increases in community values to the benefit of the community.

But company housing has this disadvantage, that it gives no control to, or places no responsibility upon, the members of the community. The Bureau in its investigation discovered only one employer who proposed giving the employees a measure of control in the housing undertaking. That employer suggested the placing of a representative of the men on the Board of Trustees of the fund which the company proposed to provide for the construction and sale of houses to its men. But such representation obviously is not sufficiently far-reaching to effect the objects under discussion here.

Perhaps in the long run, the only way in which company development can be successfully made to conserve all land values for the community is by adoption of the method sketched by the committee on new industrial towns, presented as a memorandum to the Steel Corporation and suggested for its guidance in the developments of its new steel town of Ojibway, Canada.* The plan is of such interest as to make it seem worth while to present it in detail.

When the time comes for admitting the private builders and opening the lots to acquisition and settlement, the Steel Corporation, it is proposed, should organize the "Ojibway Land Company," select its first Board of Directors, turn over to it in convenient installments the title to the land (not including plant land) and all the uncompleted contract for streets, sewers, etc., and accept in return the land company's serial mortgage bonds, equivalent to the cost of the land and improvements, up to date, plus a small profit, say 3 per cent, inasmuch as the purpose of the Steel Company is primarily to secure labor and not to make a profit. The land company would then make up its tentative rental price list for the lots and would make the following

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*A Memorandum of the Steel Corporation: "A Plan for the Conservation of Future Increments of Land Values at Ojibway and for Conversion of the Same into Additional Revenues for community Purposes." For private circulation.

ANNOUNCEMENT

No land will be sold. Title will remain in the land company and will be handled as a community investment. When the city is well established, the Board of Directors of the Land Company will be selected by popular election.

Any responsible person may select and become the tenant of any lot or lots in Ojibway not previously taken and a rental will be charged proportionate to the value thereof and roughly equivalent to what other persons are known to be willing to pay.

Rentals will be readjustable from time to time like tax valuations, with due consideration of the completion of local improvements, the growth of the neighborhood, the population of the city, etc., with the intent of charging whatever the leaseholds are worth and of securing for the community, as represented by the land company, approximately all the "economic ground rent." The readjustments of rental will be made uniformly and scientifically on a frontage basis, and no leaseholder's rent will be raised or decreased except as part of a general readjustment affecting all the land in the neighborhood the value of which has altered, and applicable impartially to his neighbors as well as to himself.

These ground leases will be for 5 years on business streets, and 15 years on residential streets, the leaseholder, his heirs or assigns having perpetually the preference in renewals. Buildings on such leaseholds will not "fall in" or become the property of the land company, as is the usual procedure in land leases if the leaseholder declines to renew.

If the leaseholder declines to renew, the land company may allow him to remain in possession upon payment month by month of the newly established ground rental until a new lessee is found who will take over the building and pay its fair market value or a 6 per cent rental thereon, whereupon the leaseholder must vacate.

If the leaseholder declines to renew, and vacates, the land company may offer the land and building together for a five year (or fifteen year) lease at not less than the regular land rent plus 6 per cent of the fair market value of the building (said value beign subject to an appropriate annual allowance for depreciation, the owner meanwhile being free to find a tenant at better terms if he can before the land company finds one at the fixed rate. Such a tenant will be pledged to pay the land rent to the land company direct and the building rent direct to the owner. The owner will be free to disposess the tenant for nonpayment of the building rent, and the tenant, although not thereafter occupying the premises, will still be liable to the land company for the land rent until the lease expires. The land company will also be free to dispossess the tenant for non-payment of land rent and the tenant will still be liable to the owner of the building for the building rent till the lease expires.

While the property is without a leaseholder, the land company will receive no ground rent and the owner no income from, or use of, the building, and they thus become partners in their desire to find a new tenant. The land company also retains the option of purchasing the building of a leaseholder who declines to renew at its market value as impartially determined by afair jury of three arbitrators,and renting or reselling it.

It will thus be seen that no man who builds in the city can have any hope of profit or fear of loss in the changing of value that the lapse of time may bring to his land. He will pay a rent greater than ordinary taxes, a rent somewhat less, however, than the amount he would otherwise pay in taxes, mortgage interest, and interest on his equity combined. He will not have to raise any principal to invest in land.

He benefits further by the fact that none of his ground rent goes to banks and private capital, but all goes into the land company's treasury to be re-expended for the benefit of himself and his fellow townspeople.

The land company will take no profits and all the income will be used in some way for the benefit of the people living in the land company tract.

The right is reserved of enacting new rules from time to time controlling the use of the land in the interest of the general public welfare and of the protection of the land values.

There remains the vital question of how we can make it safe for a tenant to erect costly permanent buildings. Obviously if the character of a neighborhood changes radically by reason of the growth of the city, a building may become obsolete in that location and an encumbrance, fit only to be torn down to make way for a type of building more suited to the altered demands of the neighborhood.

This difficulty we meet by careful city planning, and building regulation which so diminishes this hazard that there will be less danger of such premature obsolescence of buildings in this city than there is under ordinary conditions elsewhere.

We restrict every street as to the use of the land for stores, factories, or residences, respectively, and as to the height of buildings, percentage of the lot that may be covered, and minimum value of the building that may be erected thereon. Thus the man who builds a home will know positively that no stores or factories can invade his neighborhood, no cheaper houses can come in to spoil his street, no mansions will come in to inflate his rental, no high apartment will be allowed to cut off his light. The man who builds a store can make sure that he is or is not in the path of retail expansion, according to his preferences and ambitions.

Thus we plan to avoid congestion and the scrapping of buildings before their time.

The Essential Features of this Method

The essential features of this method of procedure are: (1) no sale of land; (2) title by occupancy only, through a system of ground leases; (3) periodical adjustment of values of leases to keep pace with demand for favorable sites as population increases; (4) use of all rentals for the maintenance of the property and community improvement; (5) application of the principles of classification of land for special uses and of building restrictions in order to maintain the character of the different sections (business and residence) of the community. All the principles here involved, it is pointed out, are those familiar to real estate operators, except that perhaps of periodical valuation of leases. This principle, however, is now being suggested in the water-power leasing bill before Congress, and would seem to present no great difficulties of application.

The Massachusetts Homestead Commission in its first annual report of 1914 described methods of housing work which would embody the principles of limited dividend, wholesale operations, and participation by the resident. A special committee was appointed and this committee outlined four methods of procedure, each method embodying one or more of these principles. The two methods proposed by the committee which embody the principles of limited dividend or collective participation by the resident or both may be here described.

Improved Housing Company

The limited dividend company, here termed as noted, has been known in this country and elsewhere for a number of years. It has been the practice to limit dividends to 5 per cent and to distribute any surplus for community development after ordinary maintenance and depreciation have been provided against. These companies are organized as ordinary stock companies except in the matter of limiting dividends. Speculative profits are eliminated. Houses are usually rented only; if sold, of course, the speculative element is again introduced. The disadvantages of such companies have usually been that they have had to buy land already at a high value with small prospects of sufficient rents to leave anything over for community development; neither investment nor speculative capital has been forthcoming because of a limitation of dividends; and the residents, unless they were stockholders, have had no voice in the affairs of the company. There has been lacking interest and responsibility on their part.

Co-Partnership Homes Company

This form of organization is an application of the financial features of the English Garden City movement to America. The description of this form of organization as given by the Massachusetts committee* is presented in full:

> The object of this company would be to promote the co-operative ownership of homes by a method favorable alike to resident and investor. Suitable land, accessible to the city, would be acquired, and substantial, sanitary, and convenient homes would be built. The district would be planned along advanced garden suburb lines, with restriction of the number of houses per acre and provision for allotments for gardening, community playgrounds and other social activities. Economics could be effected through wholesale operations and the elimination of speculative profit.
>
> A prospective resident would be approved and would take up at least 2 shares of common stock. He would pay a reasonable rental and share all surplus profits. Dividends on rent and common stock would be credited in common stock until the value of 20 shares is reached, outside capital being gradually retired. The cost of repairs would be deducted from the twelfth month's rent and the remainder remitted, thus further encouraging care in the use of property. The resident could invest his savings in the company stock at 5 per cent. Ownership being common, not individual, he is secure from loss if he has to move away.
>
> Capital is provided at a low rate, due to wholesale operations, the security of collective ownership, and the low rate of depreciation resulting from the great incentive to care for the property. Common stock may be drawn upon for arrears or repairs due to neglect.
>
> The directors would ultimately be elected by common stockholders, but preferred stock will be represented until common stock is about one-half paid up. Shares should be 500 common and 1,500 preferred, of $100 each. Common stock should be paid not less than 10 per cent upon allotment and installments of $1.00 per month per share. Dividends should not exceed 5 per cent. Preferred stock should be paid in full, dividends not to excede 5 per cent, cumulative. It may be retired at par on a year's notice. First mortgages at 5 per cent will be placed on completed houses up to 60 per cent of their value. A reserve fund would be established after preferred dividends are paid at the

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*Massachusetts: First annual report of the Homestead Commission, 1914. Boston, 1914, pp. 23-24.

rate of 1 per cent per annum until it equals the value of the stock. With 2,000 shares subscribed, 250 houses can be built. The committee should secure options and call a meeting when about one-fifth is subscribed.

The Massachusetts committee points out the following advantages

To the Resident:

1. He gets a home at a rental not higher and probably less than elsewhere, and is encouraged to take care of it by having his twelfth month's rent remitted, less the cost of repairs.

2. He gets a house with a garden and plenty of fresh air, a house well built and sanitary, with some individuality, in which he can take pride. He lives in a neighborhood, where all are equally desirous of keeping up the property.

3. He shares in the economics effected through wholesale buying of land and materials, building houses in numbers, efficient management, saving in legal expenses, and the elimination of speculative profit.

4. He can invest his savings in the company at 5 per cent.

5. The unearned increment goes to benefit each resident member, for which increase in values he will get either a dividend on rent, or rent below market value.

6. He secures practically all the surplus profits after fixed charges are paid in the form of a dividend on his rent, with credit in common stock until his total holdings equal 20 shares, after which they are paid in cash.

7. He lives in a social atmosphere with new and vital interests and collective friendships in the community. He has a mutual interest in common recreation facilities—playgrounds, halls, etc.

8. Ownership is common, not individual, thus providing security from the risk of loss if a resident has to leave, as he has no liability beyond the shares he holds, on which he may continue to receive dividends or which he may dispose of (the company agreeing to purchase all shares).

9. Capital is provided at a cheaper rate than by any other sound system, due largely to wholesale operations. Outside capital is gradually retired by savings.

To the Investor:

1. The company by collective ownership and responsibility offers an exceptional security.

2. The greater the surplus the less the risk, and it is to the interest of the residents, who receive surplus profits, to take care of the property, thereby lessening depreciation, to find tenants for empty houses, and to pay rent punctually. British and continental experience proves that this individual interest equals in value 1 per cent per annum on the capital.

3. The common stock forms a fund on which the company can draw if necessary for temporary arrears in rent, or repairs due to neglect, thus eliminating such losses from the items charged against preferred stock, which the outside investor holds.

The financial scheme as outlined is as follows:

1. The business of the company shall be carried on by a Board of Directors, ultimately to be elected by the holders of common stock; but until the common stock is about one-half paid in the holders of preferred stock shall be entitled to an equitable representation (see Memorandum).

2. The authorized capital stock of the company shall be $200,000. The value of each share shall be $100. There shall be 500 shares of common stock and 1,500 shares of preferred stock.

3. Common stock shall be paid for at a rate of not less than 10 per cent upon allotment, and the remainder in installments of not less than $1.00 per month per share, until fully paid up, and shall be entitled to dividends not to exceed 5 per cent, payable quarterly, after all other obligations of the company are paid. Dividends shall be applied as payments on stock until the equivalent of 20 shares is fully paid up. Not more than 20 shares shall be held by any one person. Shares shall be transferable, subject to approval by the directors of the company.

4. Preferred stock shall be paid in full, not less than 10 per cent at the time of subscription, and 30 per cent succeeding month thereafter, and shall be entitled to dividends as stated on the certificates, but in no case exceeding 5 per cent cumulative, payable quarterly, out of net earnings. Holdings are not limited and are transferable. Preferred stock may be retired in any part at par on a year's notice by the directors of the company.

5. First mortgages at 5 per cent will be placed by the company as rapidly as houses are completed, covering 60 per cent of the value.

6. After all interest on mortgages, etc., and dividends on preferred stock are paid, the company shall establish a reserve fund and shall pay into it at the rate of 1 per cent of the outstanding capital stock per annum, until it equals the value of the stock.

With the total issue of 2,000 shares taken up, about 250 houses can be built. As soon as sufficient subscriptions are received options will be secured on suitable estates.

The first annual meeting will be called within one month from the time that $15,000 on stock is paid in and a total of $40,000 subscribed.

The company will make it practicable for a family in moderate circumstances to live in a healthful home and in attractive surroundings at the least cost and to maintain it in part through the use and sale of garden products raised on adjacent land. The undersigning committee should invite subscriptions to common or preferred stock. A form for subscriptions should accompany the prospectus.

The business of the company shall be carried on by a board of 5 directors, who shall be elected annually at the annual meeting by the holders of common stock, each holder being entitled to one vote, provided, however, that no holder of common stock shall be entitled to a vote until he has fully paid for one share of common stock, or an equivalent value on 2 or more shares; and provided, further, that if at any annual meeting the total amount paid in on common stock by common stockholders entitled to vote is less than five-thirtieths of the total amount paid in on preferred stock, the holders of preferred stock shall be entitled to elect one of the five directors; if such total is less than four-thirtieths, they shall be entitled to elect 2 directors, and if less than three-thirtieths, three directors; if less than two-thirtieths, four directors, and if less than one-thirtieth, all five directors. In such election each holder of preferred stock shall be entitled to one vote for every full paid share of preferred stock that he holds.

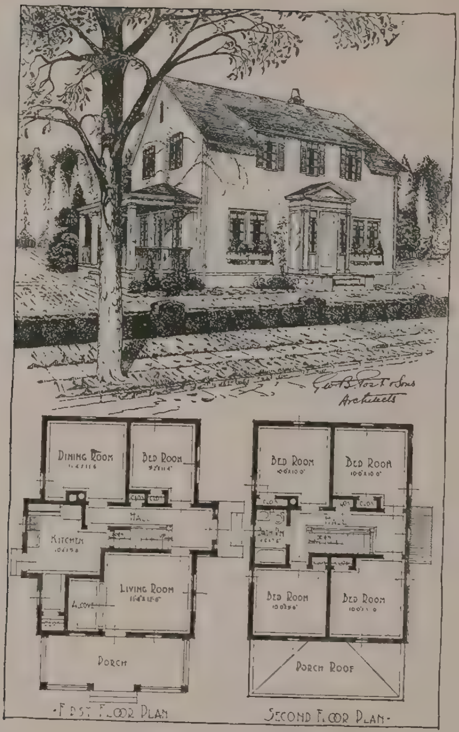
Government Control or Ownership?

It is quite evident that the government, municipal, state, or federal, may either substitute itself for anyone of the controlling organs in the above forms of housing organization or it may superimpose itself over them as a controlling or fostering institution; that is, it may either carry on housing work itself directly, or it may merely assist or direct, lend funds, supervise the controlling agencies and create the necessary rules and regulations to secure any or all of the desired ends in relation to the better housing of the workingman. Finally, the government itself may merely initiate the housing work and subsequently turn its conduct over to a company or to the community to continue it in the interests of the community.

SECRETARY LANE APPEALS FOR BETTER HOUSING FOR ALIEN WORKMEN

But all the patriotic utterances will be wasted effort, unless at the same time the spirit of fair play is observed in our dealings with the alien employee. If he is housed in slum tenement or in shanties, he will have little love for a land that treats him like cattle.

All this is no longer theoretical, nor is it to be classed as philanthropy, charity, welfare work, or some effort at paternalism on the part of a kind-hearted employer. It is a straight business proposition.—*Franklin K. Lane, Secretary of the Interior.*



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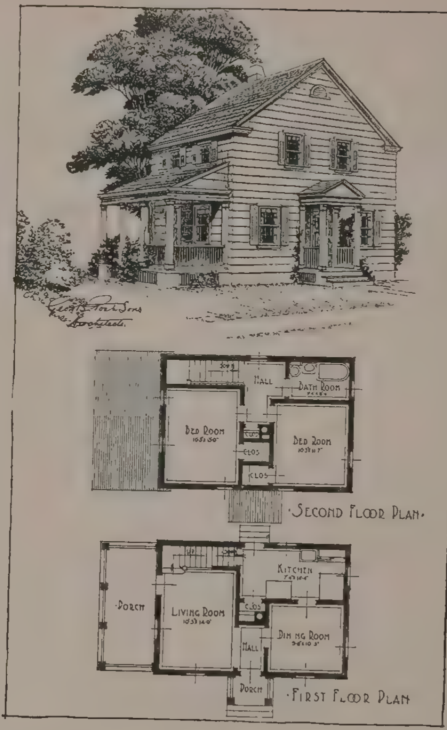

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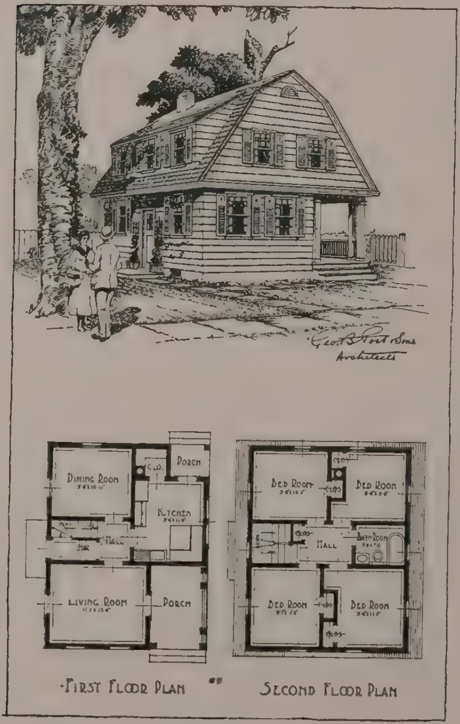

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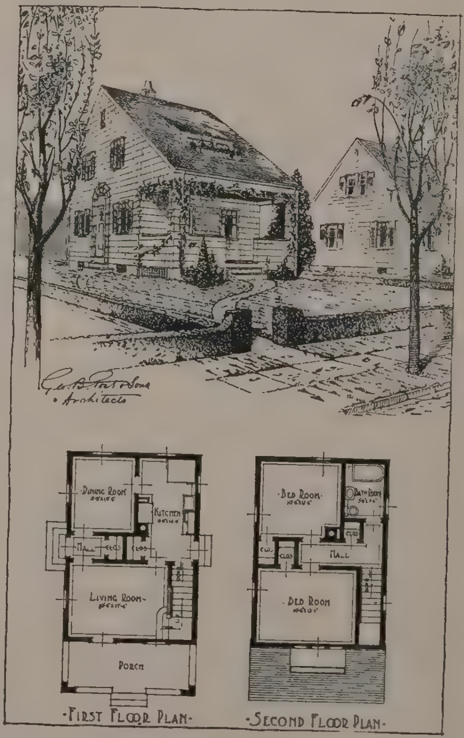


Type B-4

House Types in Eclipse Park Development

ECLIPSE PARK, BELOIT, WIS.

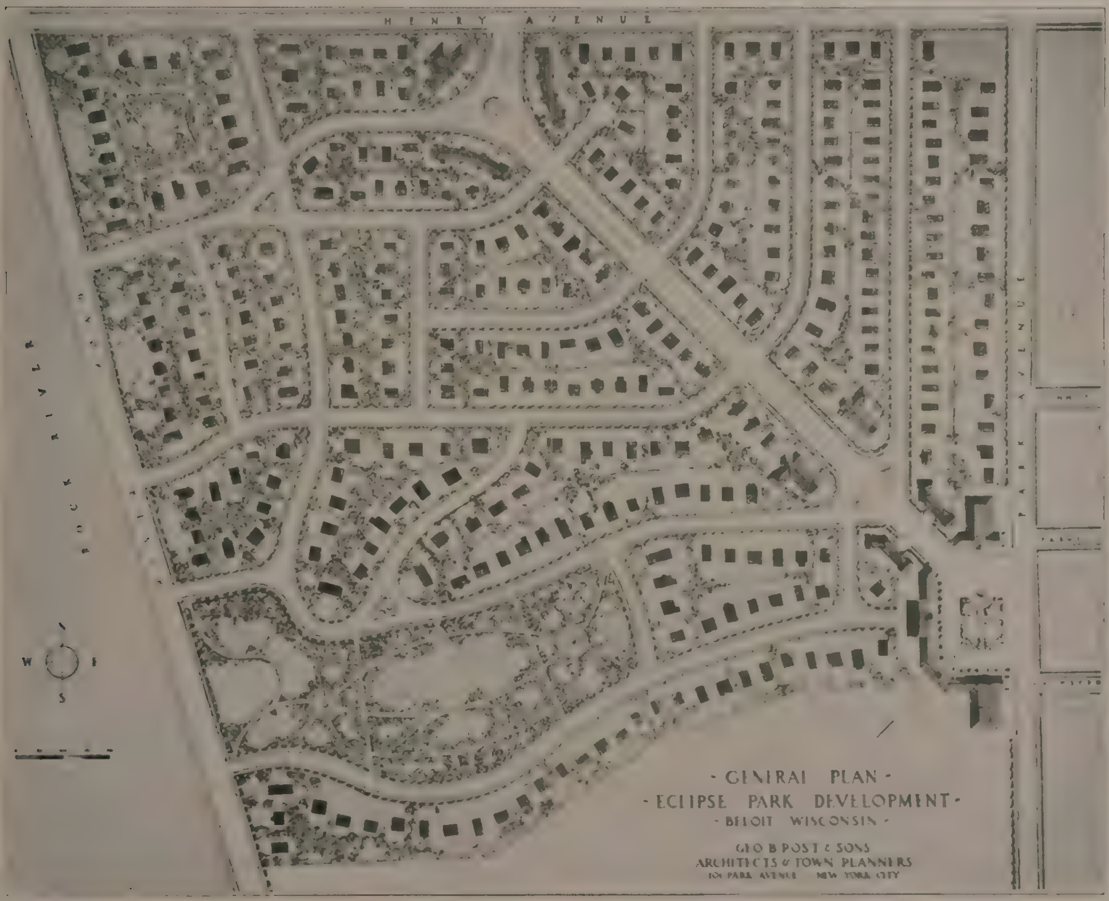
GENERAL INFORMATION, DESCRIPTION OF HOUSES, WITH TERMS OF SALE

> *"The first sure symptom of a mind in health*
> *is rest of heart—and pleasure felt at home."*
> —YOUNG.

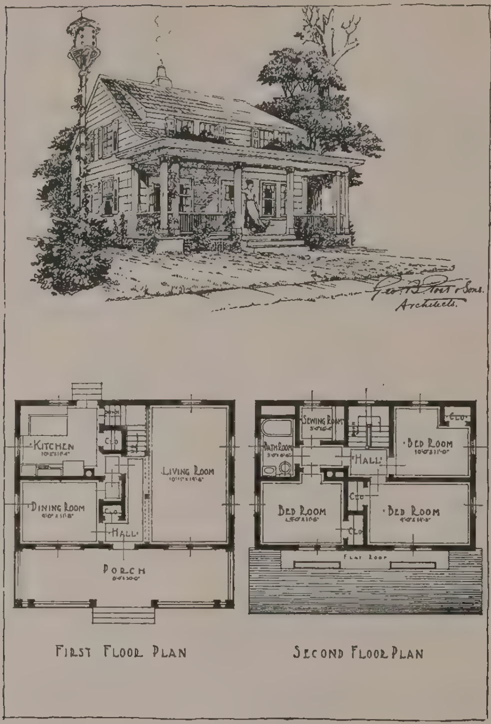
Location

ACCESSIBILITY. Eclipse Park is located in the northwest section of the city of Beloit, directly north of, and about a two minutes' walk from, the plant of Fairbanks, Morse & Co. The main entrance to the tract lies on Park Avenue, opposite the block bounded by Washburne and Farwell streets.

The business center of Beloit, to the south, is easily reached by trolley, automobile, or walking. Park Avenue borders the property on the east and is the chief thoroughfare connection with the downtown section. River



Plot Plan of Eclipse Park, Beloit, Wis., a Development by Fairbanks, Morse & Co.
George B. Post & Sons, Architects



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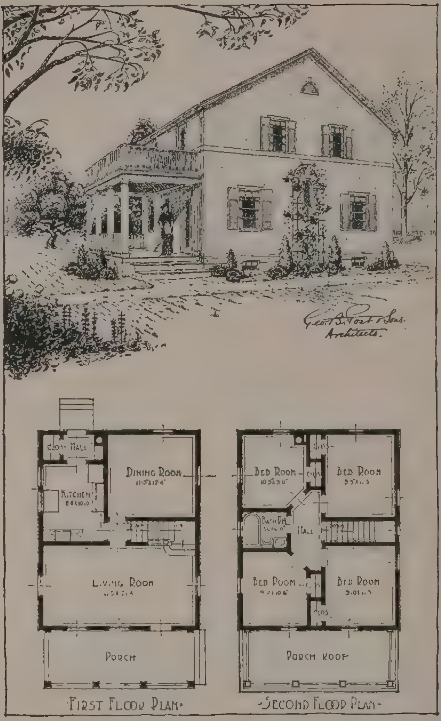

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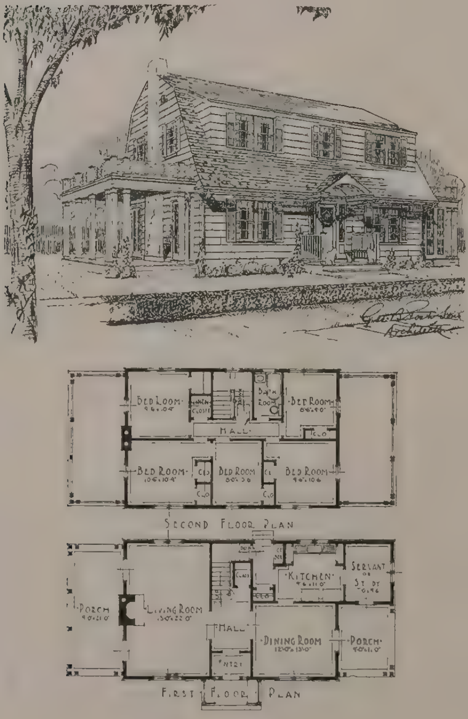
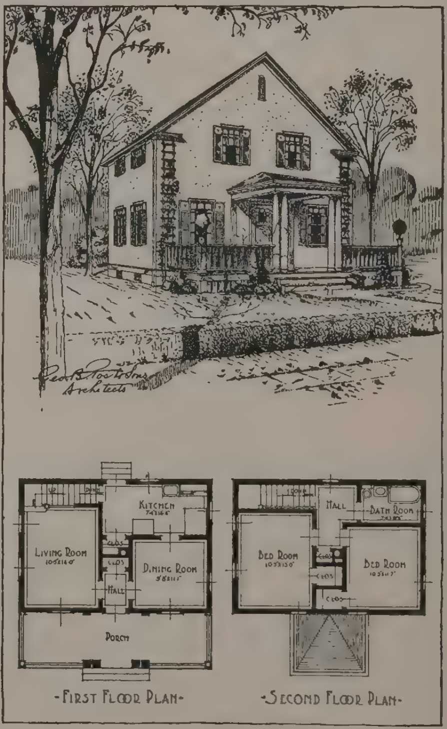


Superintendent's House



Type B-9

House Types in Eclipse Park Development

Road, parallel to Park Avenue, forms the western boundary of the tract and affords an alternative route of approach for pleasure vehicles.

The belt-line trolley, now running from the downtown section northward along Park Avenue, is to be extended through the heart of the Eclipse Park property.

An attractive group of stores, a motion-picture theater, and other buildings for community purposes are to be built at the entrance of the property, and will make living in Eclipse Park even more convenient and attractive.

Residents in Eclipse Park will enjoy all of the advantages of a self-contained community, with the additional advantage of easy access to the industrial and business centers of Beloit.

Natural Advantages. From the standpoint of healthfulness and natural advantages, the site of Eclipse Park is unusual.

Occupying a fine site overlooking Rock River, from which it is separated only by a broad river-bank road, the site is possessed of a variety and charm which make it a nearly ideal place of residence. The area now in course of development covers about 53 acres and is all well drained. It stretches for a third of a mile along the river-front and inland to a still greater depth.

The topography is partly level, partly undulating. About two-thirds of the total area, mainly that portion lying farthest from the river, is quite level. The remainder, along the river-front, rises somewhat abruptly, with uneven or rolling surface, sloping back to the level section. This diversity in contour is one of the principal charms of the property.

All that portion of the property fronting the river, about a third of the whole, is heavily wooded. The remarkable beauty of the tree-growth here is one of the most striking features of the tract, and, with the river-frontage, is one of the reasons why Eclipse Home Makers, Inc., have set aside a 6-acre park in this section.

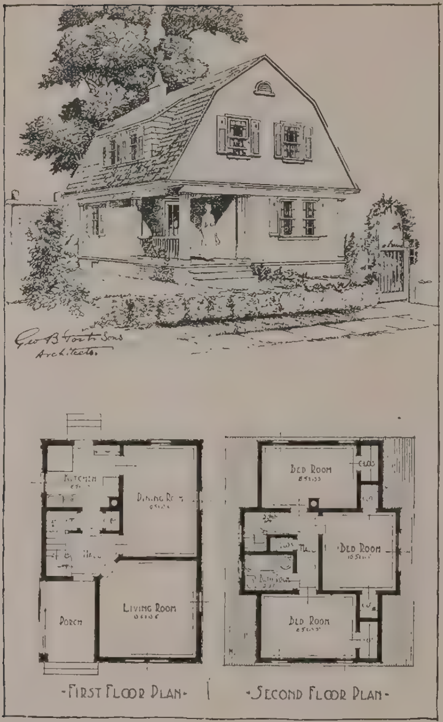
General Plan of Development

Architects and Town Planners.— The planning of Eclipse Park and the layout of streets, lots, open spaces, and sites for community uses, as also the design of the houses, is in charge of Geo. B. Post & Sons, architects and town planners, of New York City.

The Street-Plan.— In laying out the streets in Eclipse Park, the designers have avoided the monotonous checkerboard system, so-called, which is common in America — that is, the system in which all streets intersect at right angles and have a uniform width and standardized paved roadway. The distances traveled in this system are usually the longest and most indirect. Any proper centralization of the social or business life of the community is difficult to obtain. The checkerboard plan imparts a dull uniformity to the appearance of all the streets. But its most objectionable feature is that it is wasteful of land and of expenditure for street construction and paving, and so increases the amount which the home-buyer must pay for his lot.

The most important single feature of the street-plan is a broad, diagonal thoroughfare, Morse Avenue, 80 feet wide, extending from the entrance to the property on Park Avenue (opposite Washburne Street), northwesterly to an intersection with Henry Avenue. Through this broad boulevard, residents in Eclipse Park will have direct access to all parts of the development by the shortest route. The single-track belt-line trolley on Park Avenue will be extended through the property and along this avenue, so that transit service at the most convenient point will be available to all the residents of the Park. The avenue will be laid out with two roadways, each 18 feet wide, on either side of a central grass-strip 20 feet wide, in which the trolley tracks will be laid. Ample sidewalks and broad grass-strips next to the trafficways will occupy the remainder of the width of the thoroughfare.

Minor Streets.— One of the most important items of expense in the cost of the home is the cost of land for streets and for street construction, paving, and underground utilities. In most suburban residential properties, this charge amounts to more than the original cost of the lot on which the house stands. If these



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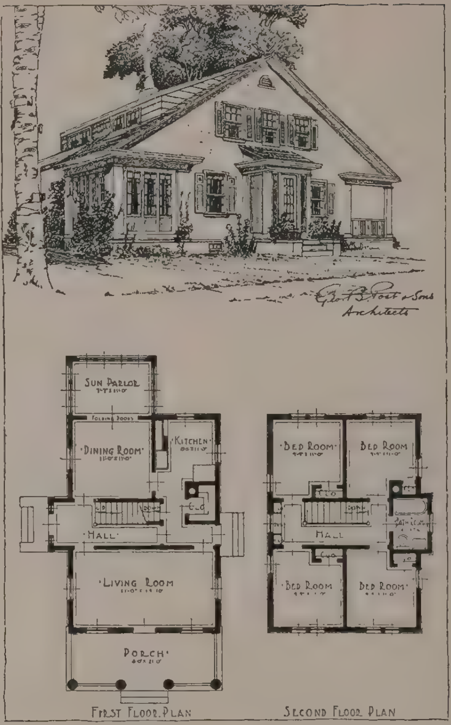

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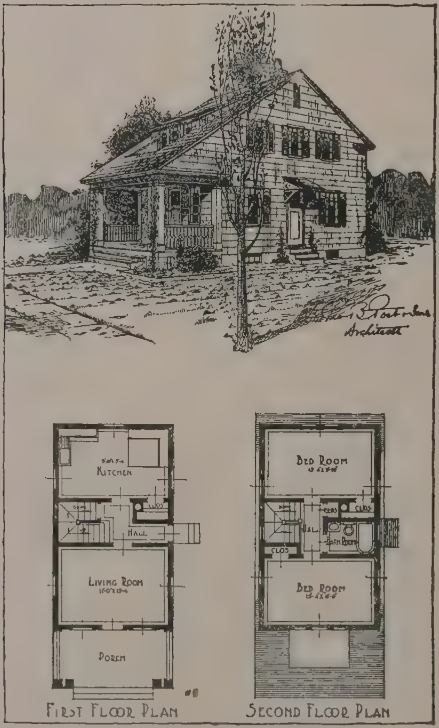
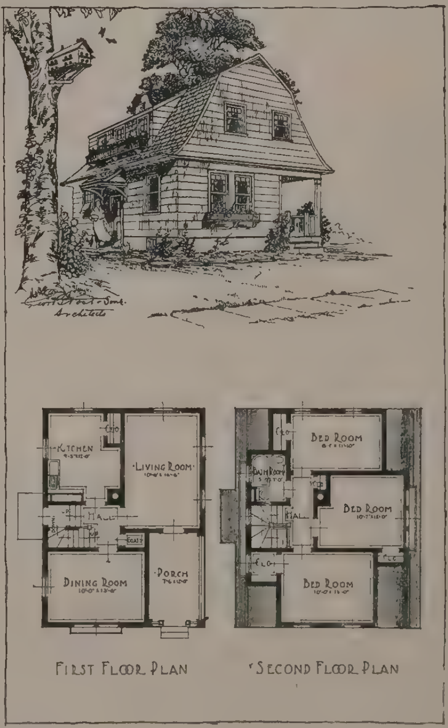


Type A-7



Type C-8

House Types in Eclipse Park Development

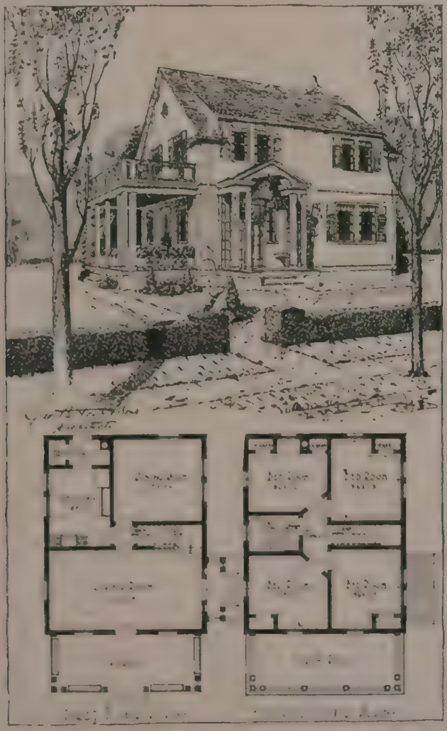
improvements are not provided and paid for at the time of purchase of lot, they are installed later by the city and paid for by the owner in the form of assessments. In Eclipse Park, every desirable improvement of the property, including paving, curbing, sidewalks, planting, sewers, gas, water, and electricity, is provided by the company in advance, or will be provided under the terms of the contract of purchase.

The company aims to offer only the most desirable and attractive properties, complete in every respect, at the lowest cost. These aims have guided the landscape designers throughout. Every known and well-tried expedient has been adopted to bring the land-development cost, as it is termed, to the lowest figure, and at the same time to give to the entire property and to each of the lots the maximum of charm, picturesqueness, accessibility, sunlight, airiness, and sanitary convenience.

Street Widths and Paving — All streets, except Morse Avenue, have been given a total width of 50 feet. Vehicle roadways on these streets will be laid out 18 feet wide and paved with concrete. On either side of the roadway, a grass-strip 4 feet wide, a concrete sidewalk 4 feet wide, and then a grass-strip 8 feet wide, next to the lot-line, will be installed. The roadway provided is ample for residential streets where the vehicular traffic thereon will serve only the abutting houses. Morse Avenue will provide ample accommodation for all through traffic.

Aside from the quietness and intimacy and safety of these residential side streets, with their narrow roadway, uninviting to traffic, there is a saving in paving and other development costs which serves to reduce further the cost of properties to purchasers in Eclipse Park by just that amount.

Setbacks.— To give further assurance of the maintenance of light, air, privacy, and picturesque effects in and about all properties purchased, all dwellings are set back from the lot-line at least 20 feet — in some cases more — and a restriction inserted in the deed insuring the permanency of this provision.



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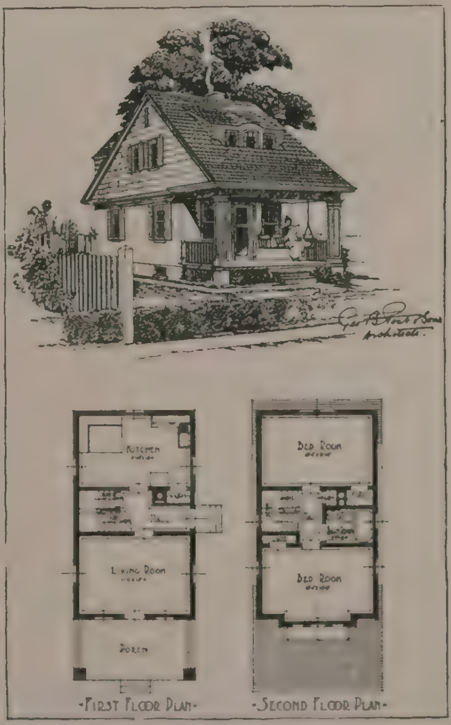


Type A-6

Curving Roads.— As a measure designed further to reduce the cost of development, and at the same time to increase the landscape and architectural interest, the streets in Eclipse Park conform to the lines of least resistance and follow the easiest and most natural grades. The cost of land development under this system is appreciably less than that incurred in the usual method of land subdivision with right-angled streets, where the cost of cutting hills and filling hollows in rolling land is one of the heaviest items of expense. The gain under the system adopted in Eclipse Park is not only measurable in dollars subtracted from the price asked for property in the Park, but in the greatly increased desirability of the lots where the changing curvature of the roads and the variations in the elevations and settings of the houses introduce ever-changing elements of interest as one traverses the streets, not at all like the hard lines and painful monotony of the right-angled street subdivision.

Community Features

Entrance Square and Store Group.— One of the most striking features of the plan of Eclipse Park — and what is destined, on completion, to become an important center in the life of residents of the Park — is the Entrance Square, with its group of attractive stores and its motion-picture theater. This is located just west of Park Avenue, near its intersection with Washburne Street. As planned, it is of irregular shape, approximately 260 feet wide by 150 feet deep, opening on Park Avenue, and includes a small park, 145 feet by 115 feet, with fountain.

Overlooking the Square, and around three of its sides, a group of two-story buildings of charming design is to be erected. The first story of this group will be treated as an arcade, extending continuously around the enclosed portions of the Square. This arcade will add greatly to the appearance of the Square, and will provide shelter in bad weather.

In addition to accommodations for stores of all kinds, and a motion-picture theater, the buildings here will provide attractive quarters for a branch library, rooms for civic organizations, clubs, and the like. The second story will be used for apartments, offices, and some of the community activities mentioned.

In addition to the above-mentioned uses, the Square serves as the focus and distributor of all traffic in the Park. Park Avenue, leading south to the city, Acorn Drive, leading west to the river, and, particularly, Morse Avenue, leading northwest through the Park, focus all vehicles and pedestrians going in or out of the Park on the broad spaces of the Entrance Square. Further, the factory yards of Fairbanks, Morse & Co., lying southwest about 200 yards, are connected directly with the Square by means of a walk, entering the Square through arched ways in the southwest side. Part of the area between the entrance square and the factory yards is given over to an athletic field for the use of employees of Fairbanks, Morse & Co.

With the general scheme as outlined put into execution, a visitor, entering the Square from Park Avenue, will find himself in delightfully quaint and restful surroundings. He will see directly ahead Morse Avenue, 80 feet wide, and its broad grass-strips, trees, and shrubs, leading straight away for a third of a mile and focusing on a site reserved for a school, just off Henry Avenue. Acorn Drive, resembling a parkway more than a street, is seen curving in its course to the wooded Community Park on the river-front.

Altogether, the impression to be gained is one of simple dignity imparted by a well-ordered arrangement of the various open spaces and buildings, and enlivened by the skillful distribution of architectural motifs.

Community Park.— As mentioned early in this outline, Eclipse Home Makers, Inc., have set aside a little over six acres as a park for the use and enjoyment of residents of Eclipse Park. This acreage lies in the southwest corner of the property, has a frontage on Rock River of about 370 feet, and extends inland about 900 feet. For many years employees of Fairbanks, Morse & Co. have assembled here as a body to take part in holiday outings. It includes the most beautiful portions of the wooded section along the river and makes an ideal outdoor site for various leisure-time pursuits of children and adults. A feature of the Park landscape is a deep ravine, beautifully wooded, opening out into a natural amphitheater, with a water-pool, setting off the variety of form and color seen in the trees and shrubs.

Church and School Sites.— Sites for public or semi-public buildings are reserved at the three most prominent street intersections on the entire property. The first of these is at the intersection of Morse Avenue with Hemlock Street, and has an area of 20,000 square feet; the second is at the intersection of Morse Avenue with Hillside Drive, and balances the first. It also has an area of 20,000 square feet. These two sites afford striking locations for buildings which will be seen at once by everyone passing through the Entrance Square. The third reservation is the quarter-circle on the axis of Morse Avenue, at its northwest end, and is bounded by Henry Avenue, Walnut Street and Morse Avenue. It has an area of 20,000 square feet.

Planting

The selling price of properties in Eclipse Park includes sewer, gas, electricity and water-supply connections, street-paving, curbs, sidewalks and planting.

As many houses are sold without provision for this important item of planting, the buyer who has had experience in owning or renting a house will appreciate the value of this provision. The front, rear, and side yards of all houses in Eclipse Park will be carefully graded and planted with lawn seed; hedges from selected nursery stock will be set along the front, rear, and side lines of all lots; and attractive shrubs of well-matured stock will be planted in the lots under the supervision of the landscape architects.

All unpaved areas within the street-lines will be graded and seeded, and trees planted at appropriate intervals on both sides of every street in the property.

Lot-Sizes

Effort has been made to realize the ideal in the matter of lot-sizes and types of houses, while maintaining a selling price for house and lot within the means of those whom it is desired to accommodate. The free-standing, detached house, open on all sides, is today recognized as the ideal accommodation for the man with a family. It affords the maximum of light, air, privacy and convenience. Eclipse Park houses offered for sale are all of this type and have ample front, rear, and side yards.

The following general arrangement of houses and lots has been adopted:

The smallest houses with four rooms ("A" Type) are located on lots with 40 feet frontage and 80 feet depth.

The next largest, or five-room houses ("B" Type) are located on lots with 45 feet frontage and 90 feet depth.

The six-room houses ("C" Type) are located on lots with 50 feet frontage and 100 feet depth.

The seven-room houses ("D" Type) are located on lots with 55 feet frontage and 95 feet depth, and also on lots with 50 feet frontage and 100 feet depth.

The eight-room houses ("E" Type) are located on lots with a frontage of from 50 to 55 feet and a depth of from 100 to 110 feet.

A few houses with seven to eight rooms ("F" Type), with exceptional interior accommodations, are located on lots with a frontage of from 60 to 75 feet and a depth of from 100 to 110 feet.

Some of the smaller houses of the five- and six-room type are located on lots varying in size from the above schedule, but in no case on lots less than 40 by 80 feet.

The houses are all set back from the front lot-line for a distance of from 20 to 28 feet. A few of the larger houses are set back to a greater depth.

Between houses on adjoining lots a space of at least 20 feet is maintained. In most instances, this free space is 25 feet or more.

The Houses in Eclipse Park

Next to the problem of the location of the house, the most important matter in the mind of the prospective home-buyer, is its interior arrangement and practical convenience. In Eclipse Park homes, the architects have used the best American standards with respect to the number and arrangement of rooms.

All the houses have concrete cellars, with 7-foot clear headroom, under the entire first floor. The cellar is equipped with a hot-air furnace, with registers to all rooms. The furnace has a hot-water back, connected with a hot-water boiler, for winter use. Connections are provided for a gas heater to be used with the hot-water boiler in warm weather.

A pair of washtubs is provided in the cellar of the largest houses, that is, the "D," "E" and "F" types of seven, eight, and nine rooms.

First Floor.— All of the houses have a separate living room, dining room, and kitchen on the first floor, all of comfortable sizes, with a few exceptions in the case of the "A" type, with four rooms, where the dining room and kitchen are combined.

The living rooms in the four-, five- and six-room houses have an area of 150 to 190 square feet. In the seven- and eight-room houses, the living room has an area of 200 to 210 square feet.

The dining room runs from 100 square feet in the smallest houses to 140 or more feet in the largest houses.

The kitchens are one of the most appealing features of properties in Eclipse Park. No kitchen has an area of less than 90 square feet, and some have as much as 115 square feet floor area. They are equipped with a modern sink and drain-board, cabinet, and gas range. A unique feature is the commodious supply closet, with six tiers of shelves, giving ample space for storage of supplies and kitchen utensils.

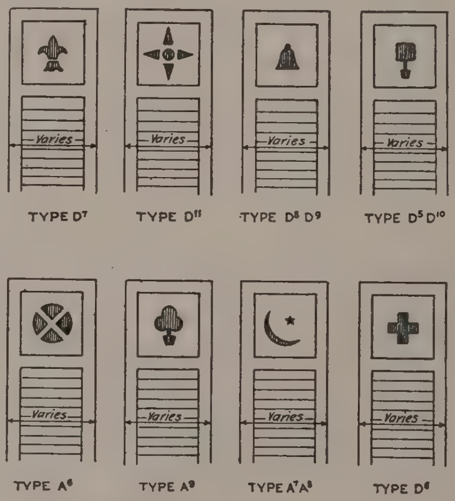
In type "A" houses (four rooms) in which the dining room and kitchen are combined in one large room, as mentioned above, buffet corner seats are built in. In others, a dining room with an alcove kitchenette, 6 feet by 10 feet, has been constructed. The largest houses have a space in the form of an alcove, or closet, located at the entrance vestibule to the kitchen, to accommodate a refrigerator.

All rooms on the first floor have ceiling-heights of 8 feet 4 inches clear.

Special study has been given to the most economic, convenient, and sanitary type of bedroom. Such rooms have a minimum floor area of 110 square feet, and range from this up to as much as 150 square feet.

All bedrooms have two windows, each arranged on opposite walls, to give proper cross-ventilation.

Every bedroom has a clothes-closet, and on each bedroom floor there is, in addition, a linen-closet, which is in itself a feature that will appeal to the careful housewife. The ceiling-heights on the second floor are 7 feet 9 inches clear. Where a roof causes part of a ceiling to slope, there is at least 5 feet height at the lowest point.



Window Shutter Designs, Eclipse Park

All houses are equipped with modern bath rooms, complete in every respect, including a porcelain tub, wash basin, and sanitary fixtures. Lighting is by electricity throughout.

The houses are of frame construction, with clapboard, shingle, and stucco exterior walls.

How Eclipse Park Homes Are Purchased

Terms of Sale.— In Beloit, as in other cities of America, the problem of providing attractive, comfortable, and accessible homes within the means of the average man is extremely difficult of solution. There has been a much greater demand for good homes at a moderate price than builders have been able to supply. The shortage of homes of this type has been due to a number of causes.

Eclipse Home Makers, Inc., have solved the problem of providing good and attractive homes at low prices by purchasing materials for a large number of houses at one time. With the assistance of their architects, they have made a thoroughgoing study of standard building materials and labor methods, with a view to getting the best possible results at the least outlay. Much ingenuity has been shown in design and construction methods, both in laying out the property and in drafting plans for the individual houses. In this way they have been able to secure the maximum convenience and attractiveness in the accommodations offered for the minimum price.

The Selling Plan

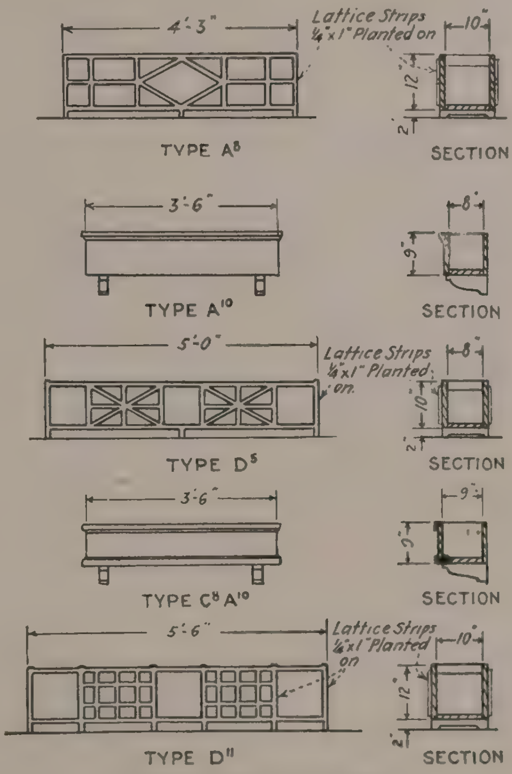
A simple and reasonable selling-plan has been devised. The plan of sale calls for a first payment of 10 per cent down on the price of the house and lot. With this deposit, a deed to the property will be given the purchaser.

A first mortgage, equal to 50 per cent of the selling-price, payable in five years, at 6 per cent interest, is required. The balance remaining of the purchase price, after the initial payment and the first mortgage have been deducted, will be covered by a second mortgage payable in monthly installments.

Every purchaser in Eclipse Park will be required to carry fire and tornado insurance on his house, the cost of which will be payable with the regular monthly installments on the purchase price.

For protection of the home-buyer and his family while the monthly installments are being paid, it is recommended that the purchaser take diminishing life insurance with one of the large companies who specialize on industrial insurance. These small monthly payments will, in the event of the death of the head of the family, cancel the contract or such parts of it as are covered by the amount of the insurance taken.

Further, in accordance with the best practice in similar developments in America, certain restrictions have been placed on the property to protect each purchaser in his right to enjoy the comforts and conveniences which he acquires on becoming a resident in Eclipse Park. Such restrictions are made a part of the deed to the property. Experience has shown that values are enhanced by such restrictions and by the knowledge that agreeable conditions are to be permanent and that no property-owner will be permitted to use his property in a way that will annoy his neighbors.



Window Boxes, Eclipse Park

Area R.—Showing Houses Under Construction in Executive Residential Section

Sectional Houses Piled on the Ground Ready for Erection

Sectional Houses in Course of Construction

Nitro, West Virginia

NITRO, WEST VIRGINIA

U. S. Government Explosives Plant "C"

GRAHAM, ANDERSON, PROBST & WHITE

Designing Engineers

NITRO, a city built in connection with one of the largest explosives plants erected by our Government during the recent war, is situated in the valley of the Kenawha River, in the northwestern portion of West Virginia.

This transitory city — transitory in the sense that it is a part of an emergency plant whose immediate usefulness terminated at the close of the war — has provided housing facilities for the workmen employed at the plant and their families, an estimated population of twenty thousand.

In providing these housing accommodations the well recognized facts were considered that the best workmen can only be obtained and held where housing is not only comfortable but attractive and designed to fit the special needs of each class.

With this in view, the employees have been placed in separate areas or sections as follows, giving in detail the type of workmen and number of buildings, with an estimated number of inhabitants housed in each particular type of dwelling.

Area "A"

In this area houses have been provided for negroes and unskilled foreign-born labor, divided in two sections, according to race.

The dwellings for negro labor constitute two hundred and fifty four-room bungalows, built for an estimated total of 2,000 inhabitants. A particular point to be brought out relative to these houses is that they are convertible to a two-family house of two rooms each, with a shower bath and toilet provided in each portion.

For the foreign-born labor, there has been constructed one hundred four-room bungalows, each house complete in itself, with shower bath and toilet. These houses will house an estimated total of 685 inhabitants.

Provision has also been made for single men or workmen without families, and for these men barracks buildings and bunk houses have been built. The barracks (twenty-seven in number) will house 200 men each, or a total of 5,400 men, and the twenty bunk houses will care for forty-eight men each, or a total of 960 men. Each bunk house and barracks building has its own particular lavatory building in which is provided a toilet room, wash room and shower bath room.

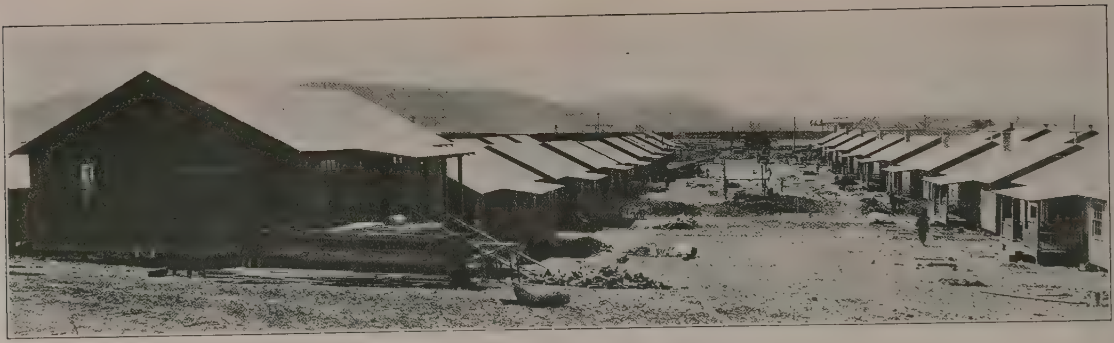
Recreation features have been provided in two Young Men's Christian Association buildings — one for negroes and the other for white laborers. These buildings contain assembly halls, where meetings and lectures may be held; lounging rooms, billiard rooms, bowling alleys and reading rooms. In conjunction with one of these buildings, there has been built a gymnasium building, which has a gymnasium floor 100 feet long and 50 feet wide, with running track, swimming pool, shower baths, locker rooms, and physical instructors' offices. At this building will be given thorough courses in athletic training.

The cold storage buildings, warehouses and freight houses are located in this area. The cold storage buildings are designed to store all the food stuffs, dairy products, etc., for the entire city.

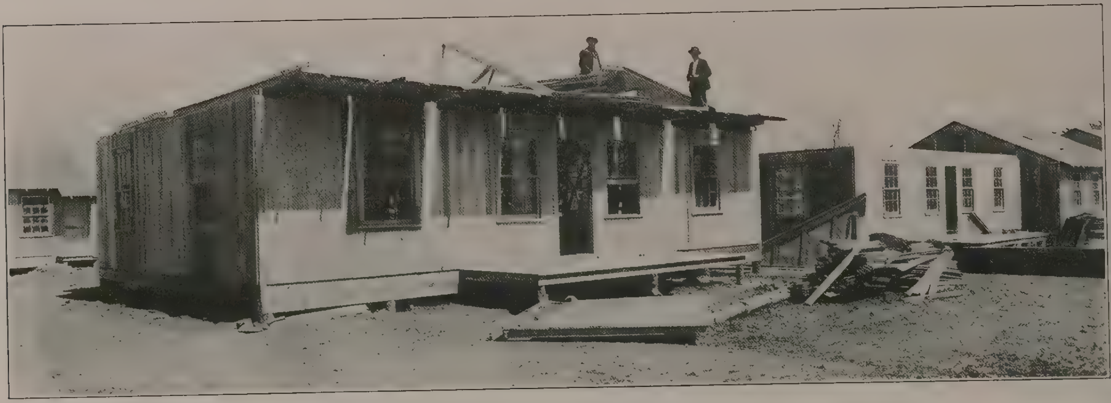
Store buildings are provided for the everyday needs of the people in this area.

Area "P"

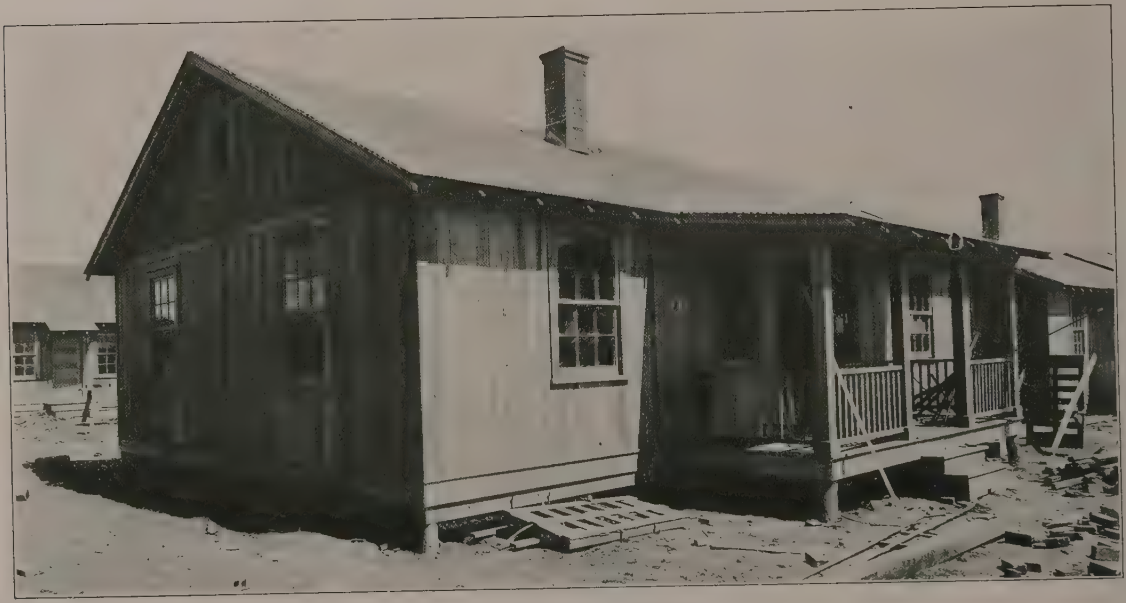
This group of bungalows has been assigned to building foremen, skilled mechanics and



Street Showing Houses Completed



Walls Erected on Sectional Houses



Sectional House Erected

Nitro, West Virginia

unskilled white American laborers. One hundred six-room bungalows have been built for building foremen, estimated to provide housing for 800 inhabitants. Skilled mechanics have ninety bungalows built for them with an estimated number of 700 inhabitants; also two hundred and fifty four-room bungalows to accommodate 1,500 inhabitants. For the unskilled white American laborers there have been provided one hundred and fifty four-room houses for 900 inhabitants and one hundred five-room houses for 700 inhabitants. There also is provided a school building for the lower grades with a kindergarten, and there is a general store building for merchandise in this area.

Area "S"

Housing in this area provides for the mechanical foremen and skilled mechanics. The mechanical foremen have been allotted to forty six-room houses which have been built for them and estimated to provide for 220 inhabitants. Four hundred bungalows have been built for skilled mechanics; also two hundred and fifty of another type for the same class of workmen. All of the above are five rooms, and the six hundred and fifty houses are estimated to house 4,550 inhabitants.

Local storerooms have been provided for food stuffs, clothing, shoes, tailor and barber shops.

The General Hospital is located in this area, The group of buildings (fourteen in number), covers a ground area of fourteen acres. These buildings have all the equipment of a modern hospital fitted to treat all diseases. The ward buildings provide for 450 beds. The staff personnel consists of twenty-nine medical officers and sixty nurses.

School buildings similar to those in Area "P" for the lower grades are provided for, and in addition there are recreational fields for outdoor sports.

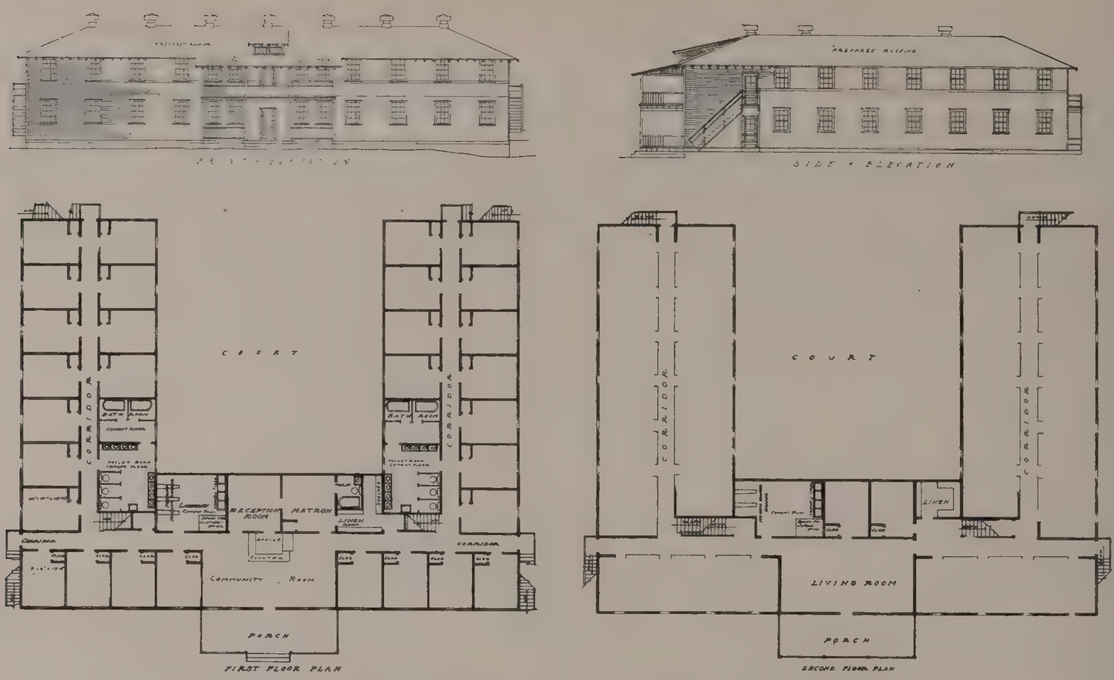
Area "R"

As this area is most centrally located to all groups, in it are located the business and public buildings. These buildings include a post office, a town hall — in which are located the police and fire departments headquarters — a court room, and administration offices for the city's government; a medical dispensary with offices for physicians and dentists, a two-story department store in which all lines of merchandise are handled, and a store, office, and lodge hall building. One of these stores will be a complete grocery and meat market with a large wareroom. The other store is occupied by a twelve-chair barber shop. Above these stores is a lodge hall which will seat 700 persons. In addition there are several suites of offices in this building, a large drug store and haberdashery. A bank building with stores is being built. Some housing is provided in this center, and these buildings are as follows: Two bachelor apartment buildings of forty-eight rooms each, one women's lodge building of sixty rooms, one women's and one men's club building of sixty rooms each, a hotel of ninety-eight rooms, and a Young Women's Christian Association building, which has seventy-five sleeping rooms. In connection with all these buildings, restaurants are located either in the buildings or adjoining.

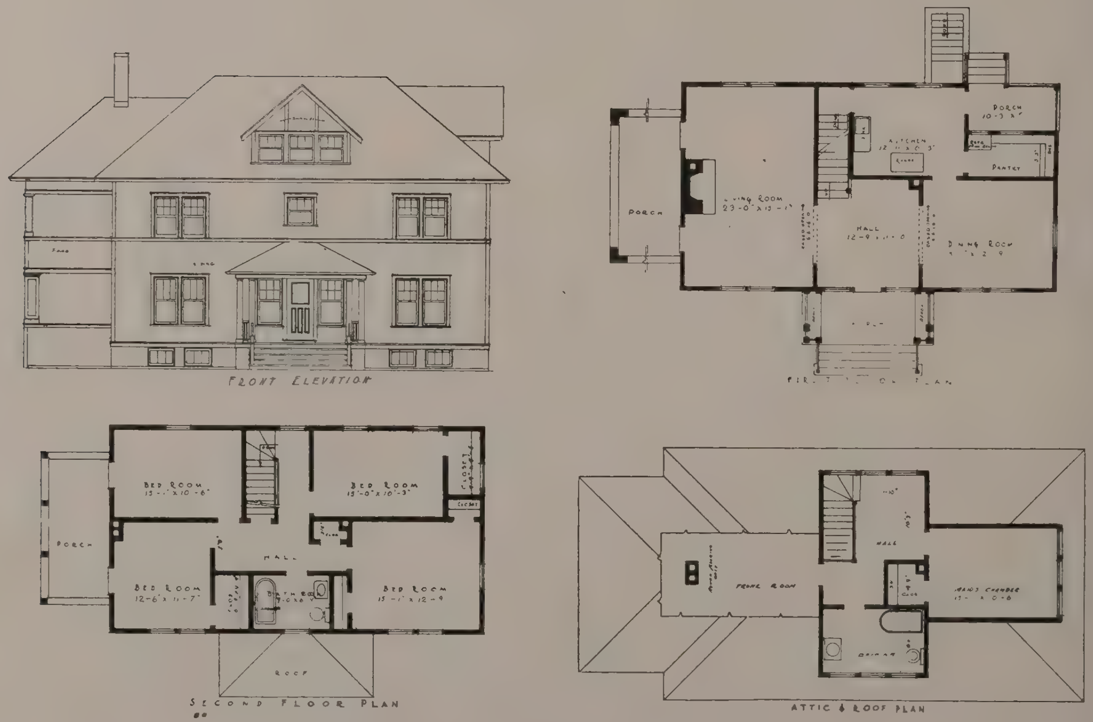
For recreation there has been provided a Young Men's Christian Association building with an auditorium to seat twenty-five hundred. The remainder of this building is along similar lines to the one outlined in Area "A," except on a much larger scale. This building also will have a gymnasium and swimming pool in connection.

The women are provided with a recreational building in which a combination auditorium and gymnasium is built. This auditorium will seat 600 persons and has locker rooms and shower baths. On the second floor are club rooms for social work, instruction meetings, etc. A motion picture theater seating 500 persons is built, in which regular exhibitions will be conducted. All assembly rooms have been provided with motion picture operating rooms, so that this form of entertainment may be furnished.

The higher grade school buildings are located here and will give the regular term of grammar school education.

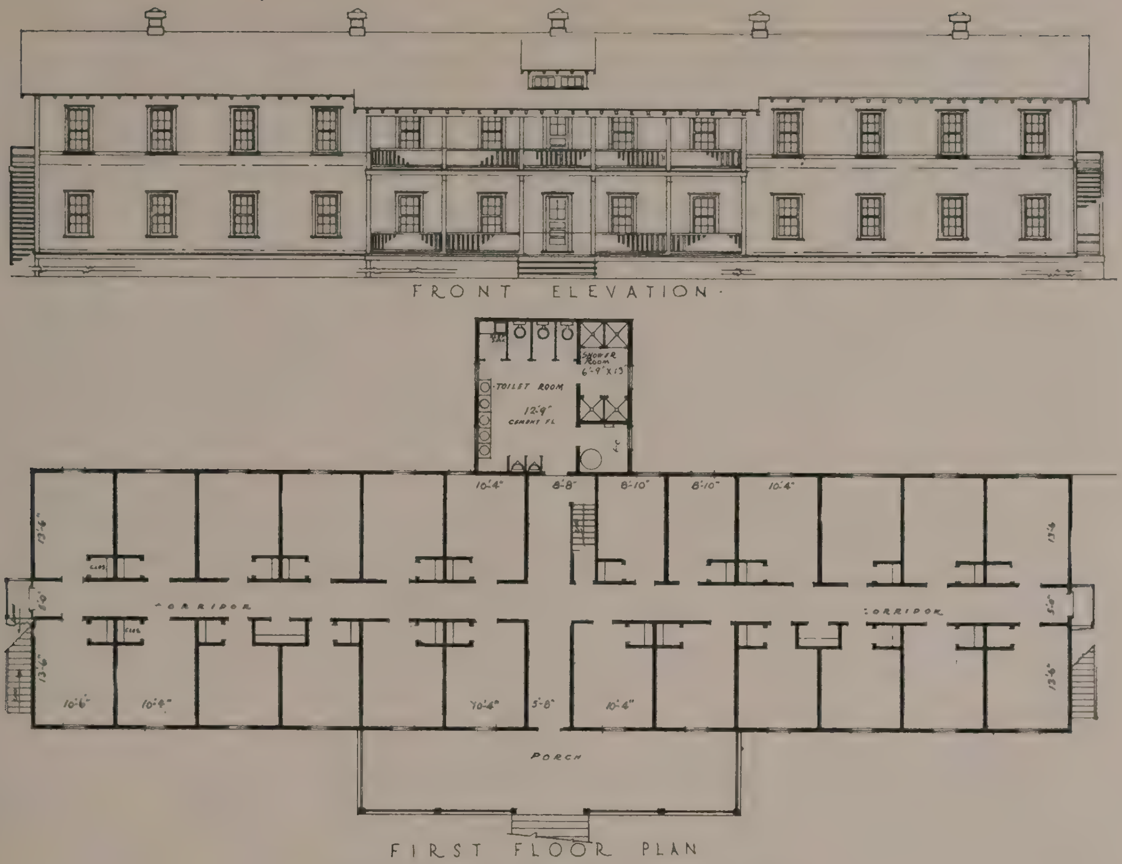


Elevation and Floor Plans of Women's Lodge

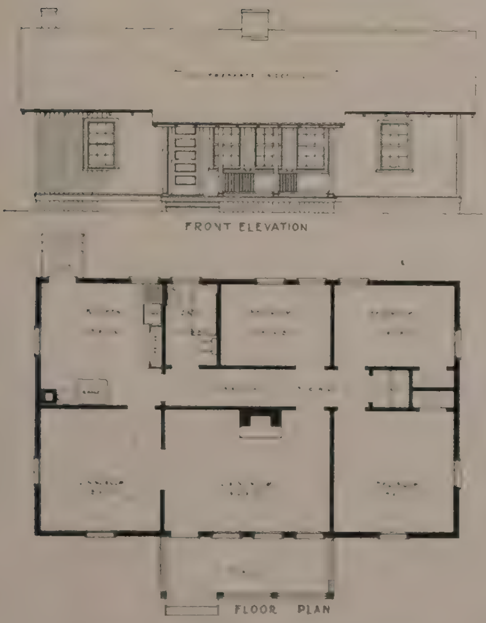


Elevation and Floor Plans of 8-room Residence

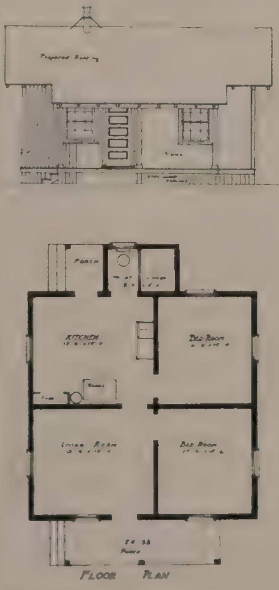
Nitro, West Virginia



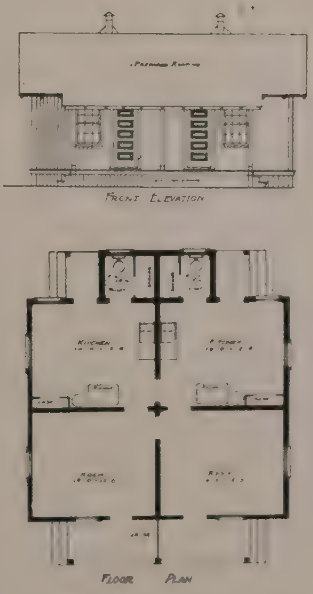
Elevation and First Floor Plan of Bachelor Apartments



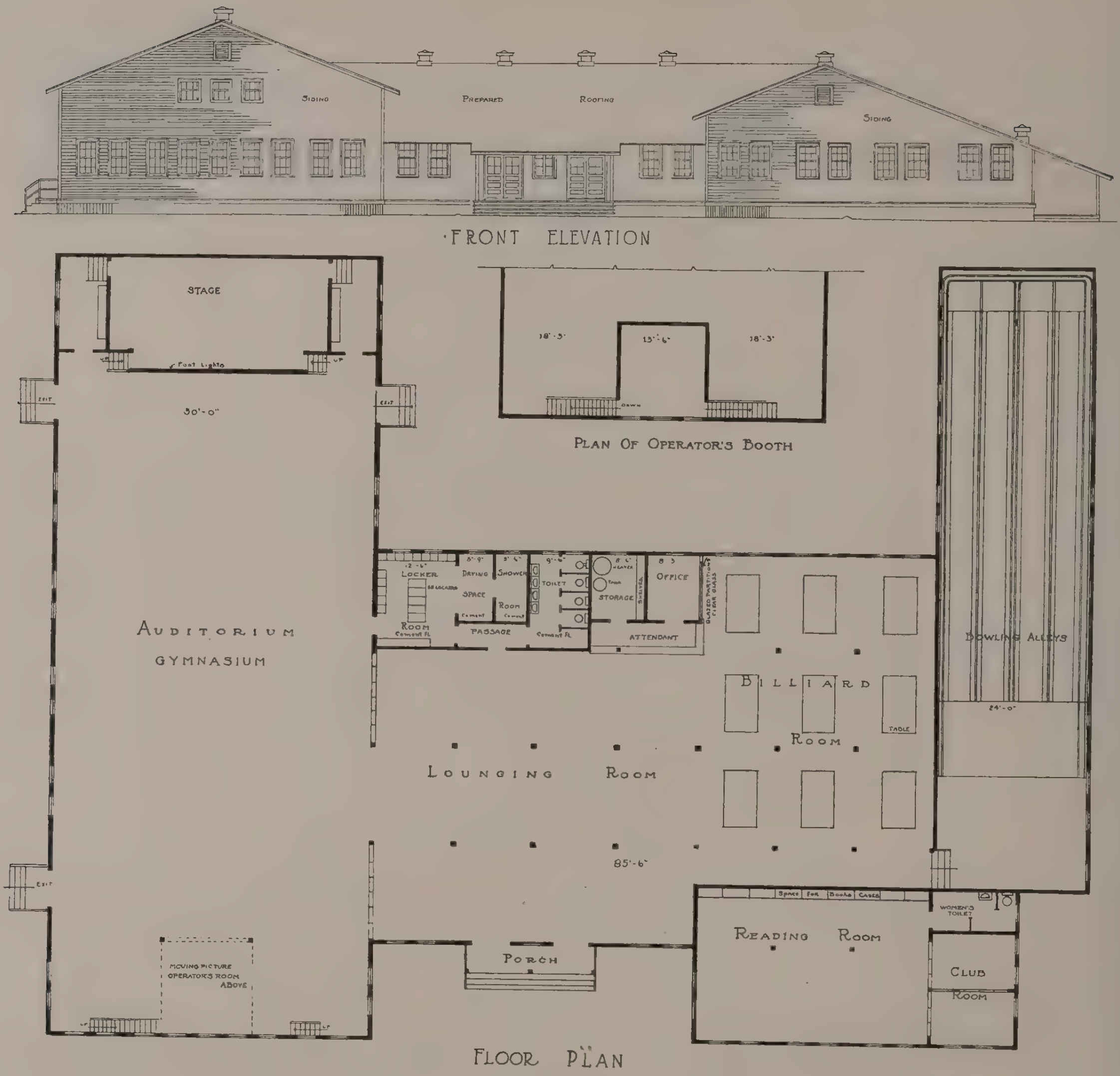
Six-room House for Mechanical Foreman



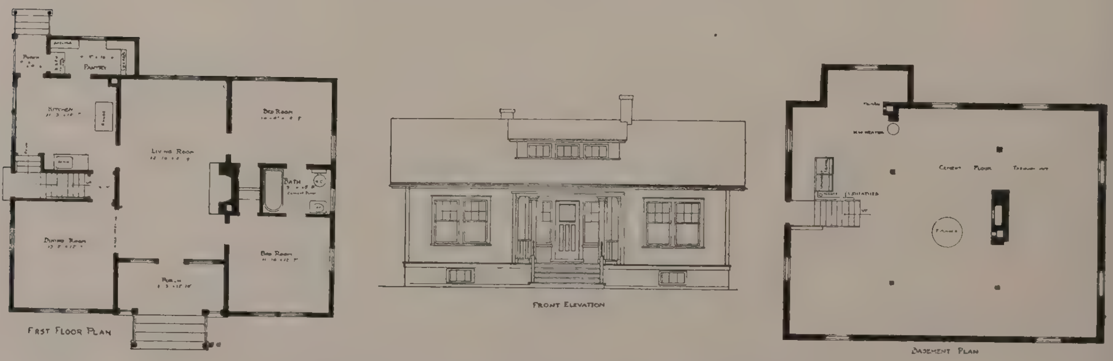
Four-room House for Unskilled Foreign Labor



Four-room House for Unskilled Negro Labor

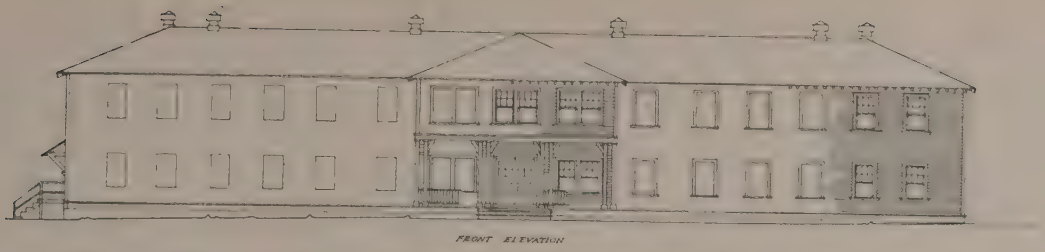


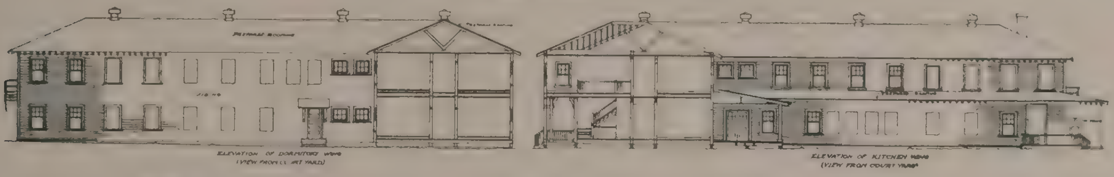
Front Elevation and Floor Plan of Y. M. C. A.

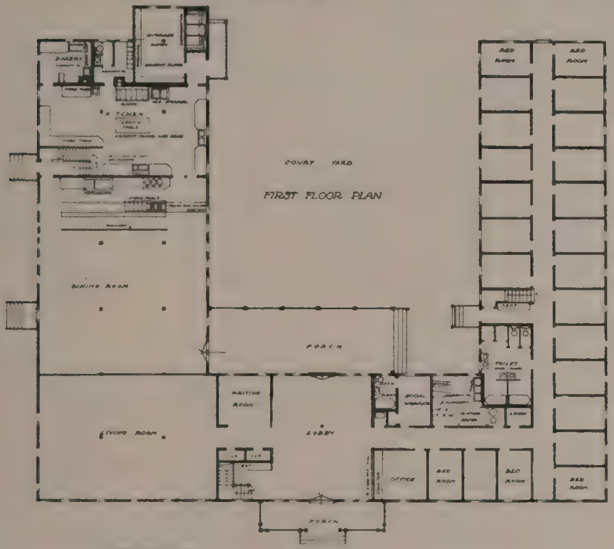


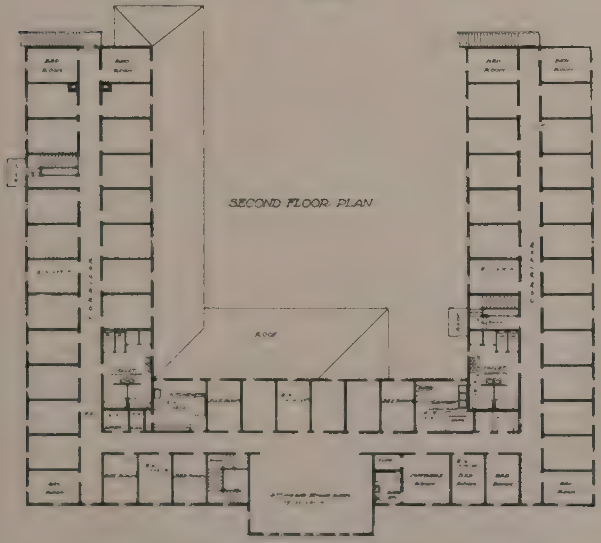
Five-room Bungalow, Elevation, Floor and Basement Plans

Nitro, West Virginia

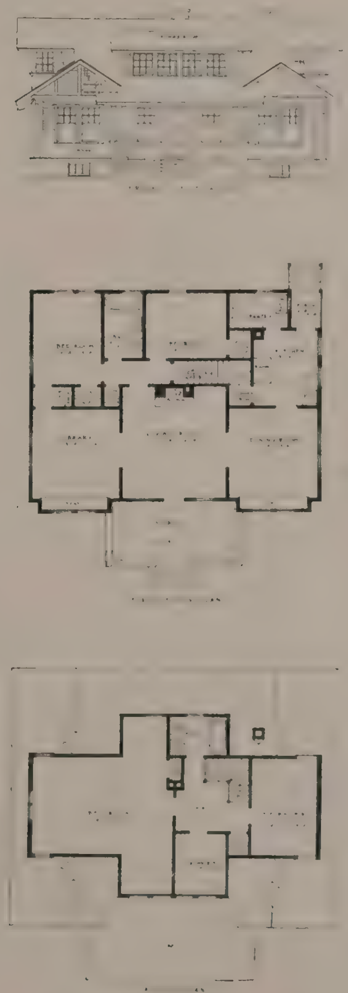






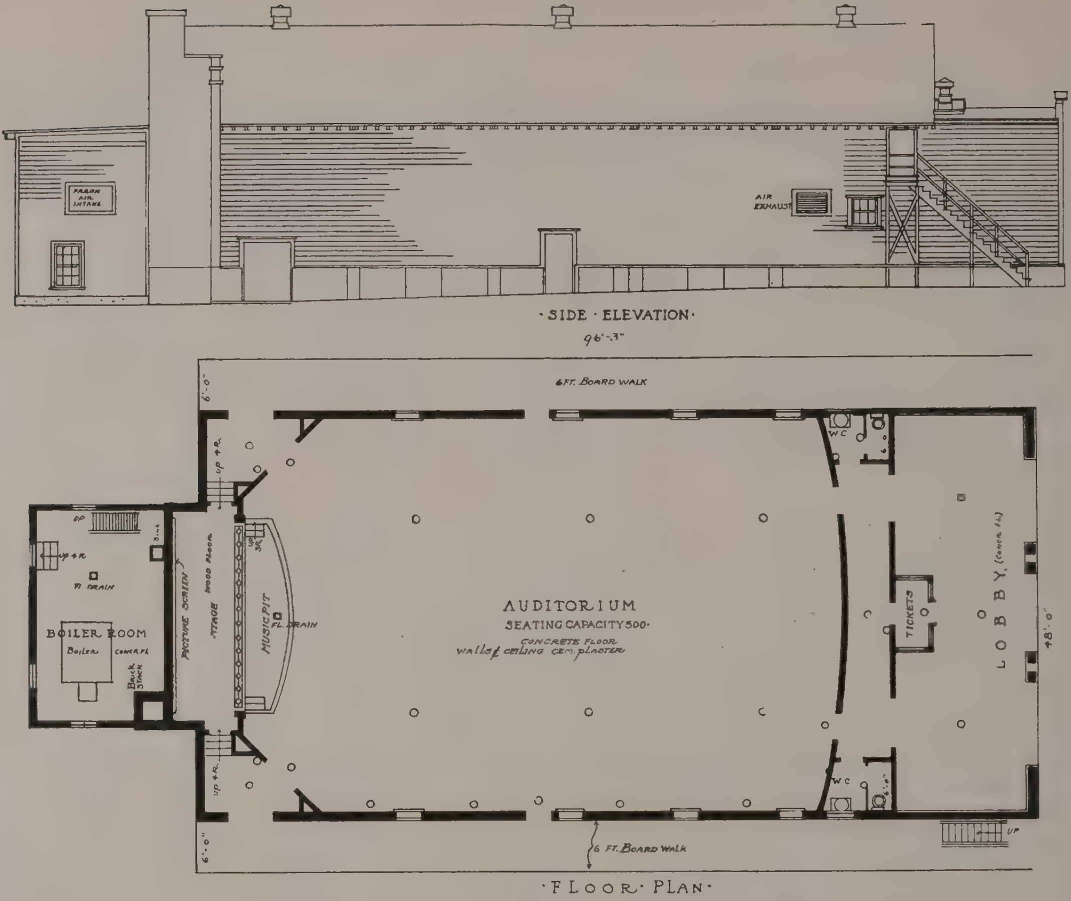


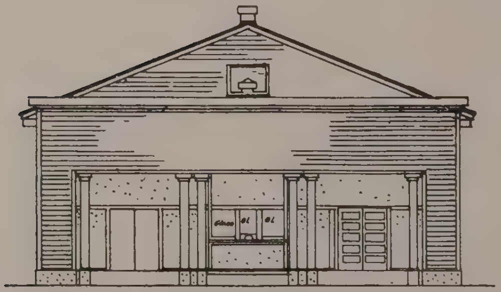
Elevation and Floor Plans of Y. W. C. A. Building



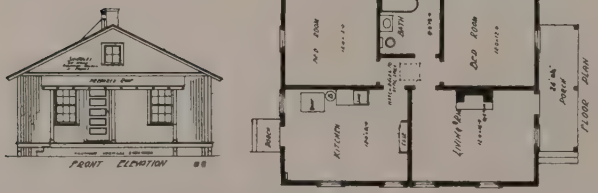
Seven-room Bungalow, Front Elevation and Floor Plans

Nitro, West Virginia

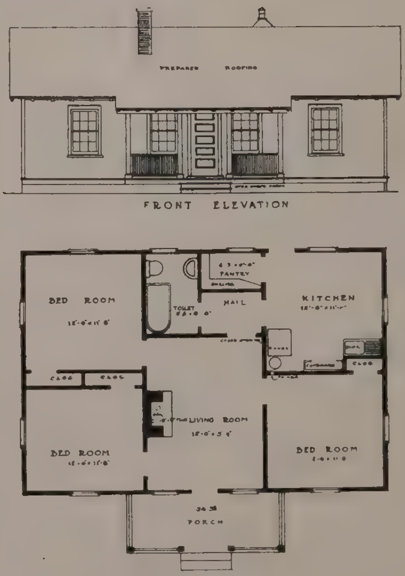




Front and Side Elevations. Floor Plan of Civic Center, Nitro, W. Va.



Skilled Mechanic 4-room Bungalow.



Skilled Mechanic 5-room Bungalow

Nitro, West Virginia

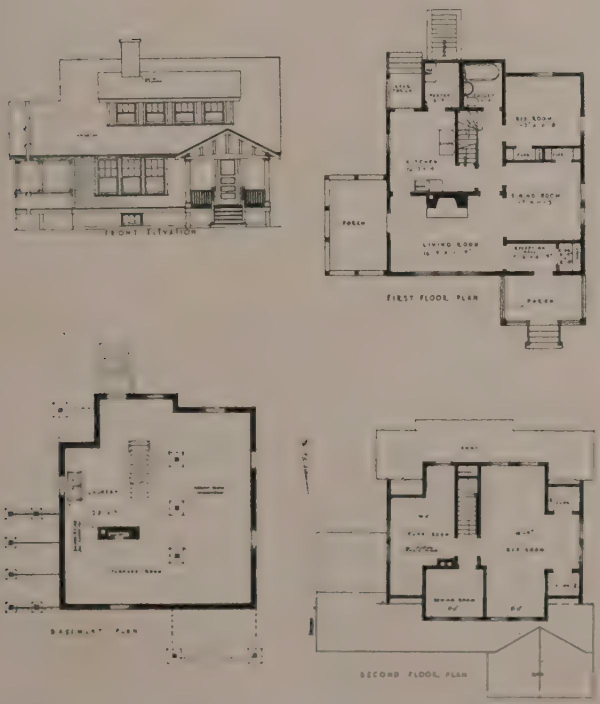
In addition to the above buildings there will be built a public garage and a laundry building with a dry-cleaning establishment. All of these buildings are heated by steam from a central heating plant.

In another portion of this area housing is provided for the executives of the plant, the department heads, etc. These houses (seventy in number) are of five, six and seven rooms, and consist of two story residences and bungalows of various designs. These houses are heated with hot air furnaces, using natural gas for fuel.

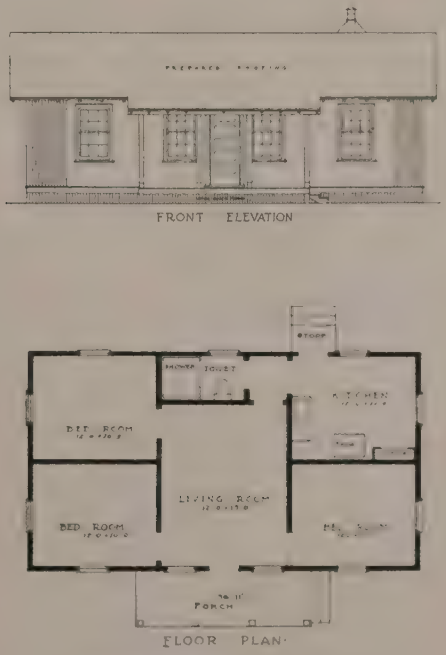
In this operation it was essential that housing facilities be quickly provided, and at the same time fulfill all requirements of well established industrial housing. This feature governed the design of all houses except those in Area "R." In this program it was necessary to consider all uncertainties as to field work, the eliminating of congestion, and the saving of the time and expense of building under conditions not the most favorable, which must necessarily obtain in the installation of a plant of this size. The bungalows were so designed as to be manufactured in sections, which was accomplished largely by machinery under standardized working conditions before being shipped to the plant.

These houses are so constructed that they will have a reclamation value of 40 per cent of their original cost, in that they can be taken down in sections and moved away when operations cease at this plant.

The plant is located near large developed as well as undeveloped coal fields, and for this reason, if the occasion arises, a ready market should be found for the buildings when they have served their purpose at the explosives plant.



Six-room Residence, Elevation, Floor and Basement Plans



Five-room Bungalow for Unskilled American Labor

Nitro, West Virginia

THE BEST HOUSE FOR THE SMALL WAGE EARNER

By RICHARD HENRY DANA, Jr.

Of Murphy and Dana, Architects, New York

IF wage earners were all in the building trades our problem would be less difficult, but in most lines of work wages have not caught up yet with the sudden jump in the cost of building and living since last winter. It is, therefore, a doubly difficult problem now to build houses that will not be beyond the means of the small wage earner.

Good housing has just gotten to the point where it is recognized as no longer philanthropy but good business. Employers realize that without good housing they could not keep their best men in town, and that with good housing their employees were more steady and contented. It was possible for them to build such houses and get a return on their investment. Since last winter, however, the prices of materials and labor in building have risen so tremendously that it is very difficult to make it a paying proposition. The danger is that employers, wishing to supply homes for an increased number of employees, will build ugly and unsanitary temporary shacks that will disfigure our towns and cities. The trouble will be that these so-called "temporary" shacks will not be temporary, but will be allowed to stand for years to come, looking shabbier and worse each year. Would it not be a lasting advantage to the town to co-operate with the builders of these houses in some way, so that they should build permanent houses that would be an embellishment rather than a detriment to the looks of the town?

An Economic Problem

This problem, then, of the best houses for the small wage earner is first of all an economic one. We have found since last winter that literally every $25 counts, and that there is nothing to spare if one wants to build houses for the cheaper rents. In this paper, therefore, the economic side will be put ahead of appearance, but special emphasis will be given to those things that are both more economical and better looking.

The subject is so large that this paper will be limited to the suburban style of house. City tenements are in most places well regulated by building laws, but suburban developments are often unregulated. Besides, the suburban style seems more typical of America as a whole than the tenement. The paper will be further limited to houses that will rent under $20 a month. Houses renting for $20 a month and more are an easier problem. The more difficult problem needs more careful study and scientific solution.

Land Costs

The question of land might seem to be more the field of the landscape man than the architect. But the cost is the chief question, and the more the land costs the less there is left for the house. It is disconcerting, to say the least, when an architect is told that he should plan a group of houses to cost $2,000 per family, and is informed later that out of this $2,000 he must allow $400 for the land. If the houses could be put up on land costing about $100 per family, the $300 saved would help tremendously in the house. In building these houses therefore a bargain in land should be looked for and bought at opportune moments, far ahead often of the time that the buildings are started.

The small wage earner must not expect to live in a house that is centrally located, but should be far enough out for the land to be cheap and taxes low. There is a surprising amount of waste land even near our large cities. A view from the Woolworth Tower in New York shows twice as much undeveloped green area as built up area. The land should, of course, be near enough for the extension of electric or gas lines, water and sewer, or if it is a large development a separate system for it can be put in. Transportation to work is another important consideration, and this land should preferably not be more than fifteen minutes walk from some means of transportation.

Bargains in "Undesirable" Land

So called "undesirable" land should be looked for, provided that it is not unhealthy, because the land will be so much cheaper; the unfashionable side of the town, with cheap houses near by or opposite, unimproved streets and sidewalks, land next to a cemetery or railroad tracks, land very sloping, low, bare or irregular provided it is not rocky, (which would involve the cost of blasting) and not more than five minutes walk to means of transportation. The financial success of a housing development in Derby, Connecticut, for which we were the architects, largely depended on the undesirability and, therefore, cheapness of the land when it was bought.

The land should, of course, be improved to make an attractive setting for the house, with concrete sidewalks four feet wide, shade trees in the grass strips between the sidewalk and the curb, a front lawn with no fences — which emphasize the smallness of each lot and are a continual expense to maintain; and hardy shrubs and perennial flowers in front of every house, with a chance for individual flower and vegetable gardens in the rear.

The Type of House

Let us next consider the type of house that shall be used as the standard and repeated for the sake of economy. The one-family free-standing house is now too expensive to build, heat and maintain for rentals under $20 a month. Furthermore, it uses too much land if sufficient space is left between the houses. On lots 25 feet wide and less the narrow spaces between these houses are usually damp, dirty and ugly. The houses are frequently so close together that the middle rooms of two adjoining houses look directly across at each other with no decent amount of air or privacy. If these houses are two stories high they are always too tall and narrow to be of pleasing proportions. The houses seem to be standing up, which gives an unpleasant, restless effect. If they are one story high it means they spread out a great deal, so that more land, foundations and roof are necessary and run the cost up too much, and are therefore out of the question.

The two-family duplex house, with one family living over the other, has all the disadvantages of the one-family free-standing house, plus the following drawbacks: There are no individual front yards and, therefore, the space in front is usually uncared for. There are no individual back yards for drying clothes or for vegetable gardens. The cellar and back yard are not easily accessible to the second floor apartment. There is less privacy for each family, as the bedrooms and bath-rooms are on the same floor as the living quarters, and frequently not sufficiently separated. There is no saving in the number of stairs over two houses side by side, as there have to be front and back stairs for the second floor family.

The two-family semi-detached house is preferable to both the one-family free-standing house, and the two-family duplex house for the following reasons: It is more economical to build per-family than two one-family houses, as the party wall between the two families is less expensive than two outside walls; and also each house is easier to heat in cold weather. By economical planning one chimney and one line of plumbing can be arranged for both families. By having the scheme only two rooms deep no room looks directly into another house, but looks either out towards the street or towards the back yard. Each family has three sides of its house open to the light and air, so that it does not feel shut in. Furthermore this two-family semi-detached house is much more pleasing in proportion than the one-family free-standing house, as the length is greater than the height, and the whole building sits on the ground in a comfortable, restful way. The two-family semi-detached house is no more expensive than the duplex type, and avoids all of the disadvantages of the duplex type previously mentioned.

The Row House

Houses in rows with three to eight families in a group are cheaper still to build. When we first began using this type, we anticipated that the end houses would be rented first, but they proved to be the last, as the canny householders discovered that the middle houses required much less heat to warm them in winter than the end houses. Groups longer than eight houses in a row tend to become monotonous. These compositions of eight houses, however, have great artistic possibilities on the exterior, especially if the end houses are treated in a different way from those in the middle.

Such an arrangement of two-family and eight-family standardized houses might at first sight seem to be too uniform. There is, however, a great chance for variety in grouping the houses. It is not necessary to have all the houses directly on the street; some of them can be placed end-on to the street, and interesting groups can be arranged with a long house in the middle and two short houses at either side around a central garden or lawn.

Materials

Fireproof construction is now impossibly expensive for this kind of house. Concrete houses are much talked of, but these are too expensive unless the forms are used for a large number of houses; and then it can only be done economically by re-using the same moulds in succession, which means that this large number of houses would have to be built during a long period, which is not usually desired. The concrete houses furthermore tend to be very damp. Hollow terra cotta blocks make good dry houses, but are too expensive for general construction use, except perhaps for the exterior walls. The main construction of the exterior walls and floors is still most cheaply accomplished by frame construction. This, moreover, can be made rat-proof and fire-retardent for almost no additional expense by means of stops made of concrete — using the minimum of cement and a large amount of waste found in construction.

For the exterior walls, the question of local materials enters in very much, so that it is hard to generalize on this point. In most localities novelty siding without any sheathing is still the cheapest. This does not make, however, a very warm wall for houses in cold climates, even with building paper placed between the siding and the studs.

The next cheapest is usually clapboards on top of sheathing with building paper between the clapboards and the sheathing. Shingles on top of sheathing are usually a little more expensive than the clapboards, but have the advantage that they can be left natural without any paint or stain if so desired.

Stucco on wire lath on stud walls is sometimes economical in the end, especially if sand is close by and cement is cheap in the locality. Stucco walls protect the building from fire on the outside and do not have to be repainted as woodwork does.

Brick walls are usually not dry unless the plaster is set out on furring on the inside. Sometimes bricks can be obtained very reasonably if the "run of the kiln" is used, that is, using the hard burned and soft burned brick with the consequent pleasing variation in color, provided of course that too many soft brick are not used.

Glazed terra cotta blocks on the exterior we have used only once and did not like the effect, as the blocks were too dark in color. If these glazed terra cotta blocks could be made in light colors, they ought to prove very desirable for exterior walls, as they are light in weight and, therefore, cheap to transport, and give a splendidly insulated wall, keeping out the heat, cold and dampness.

Importance of Pleasing Roof Lines

With regard to roofs, the cheapest type is probably the flat roof covered with tar and gravel. This, however, usually gives a very unpleasant boxy look to the exterior. Slanting roofs are the great artistic chance on the exterior, giving variation to the houses not only in contour but in color. The roofs are seen conspicuously against the sky or the trees, and form, it seems to me, the most important feature of the exterior which should not be missed.

For roof materials, the composition roofings are the cheapest. There are many of them made, but most of them are composed largely of gums which would dry out and probably not last more than ten years. Wood shingles are the next cheapest. These can be stained in many attractive colors, which help to protect them and increase their length of life 15 to 20 years. There is in certain localities small-size inexpensive slate which has the advantage of making the roof fireproof from the outside. The asbestos shingles come now in soft attractive colors, but are more expensive than the cheapest slate.

Unless rain water has to be saved, I would strongly advise against having any gutters or leaders. This omission reduces the original cost and maintenance, and is no loss to the looks of the building. Tin gutters do not last long; and copper is, of course, too expensive. The saving by this omission is really quite an item.

The chimneys — usually of brick, as stone is too expensive — look very ineffective if small, so that the economical arrangement is the plan of combining several flues in one chimney, which helps to give a larger and better looking chimney on the exterior.

With regard to the windows, I would strongly advocate casement windows in preference to the more usual double-hung windows. In the first place, they are less expensive than the double-hung windows, as they do not require any weight boxes or weights. In the next place when open they give the whole instead of half the window for the circulation of air. By making the windows open out they can be perfectly watertight, and will not take space in the room nor interfere with window hangings. These casement windows can be arranged to make the bedrooms as airy as sleeping porches in warm weather. Shutters are expensive, and are unnecessary, except in very hot climates. The rooms can be darkened by dark window-shades if needed. Bay windows and window-boxes, while attractive features in themselves, would be too expensive for this type of house.

The Interior

I wish to make a special plea for fairly low ceilings. There is, I know, a general prejudice in favor of high ceilings, but there are many reasons in favor of ceilings not over eight feet high. The first of these is that by reducing the height of the ceilings we reduce materially the cubical contents of the building and, therefore, the cost. In the next place, the height of the ceilings is then in scale and proportion with the width and length of the rooms, which have to be small in a house of this type. Rooms having low ceilings also are easier to heat and are cosier in appearance. A large part of the charm of the colonial farm houses is their low ceilings. Also low ceilings make the whole building lower on the outside, and consequently better proportioned. This does not mean that the rooms will be stuffy, if there are plenty of windows and the heads of the windows are kept close to the ceiling. The space between the top of the windows and the ceiling is always dead space and is no advantage in the ventilation.

With regard to heating the interior, it is often economical, in a large group of houses, for the owner to supply exhaust steam from the factory, if not too far away, and charge for this heat in the rent. Steam heat installed separately is too expensive. Individual heating systems work very well with hot air, but in the minimum-cost houses nothing but stoves can be afforded, with the second-floor rooms heated by the registers in the first story ceilings or by using a type of stove with hot-air pipe to the second floor.

The interior walls are most practical if plastered two coats, the second coat smooth finish, and painted with washable paint. Narrow bases and trim are not only cheaper than the usual heavy work, but also are in better scale with the small rooms and even make the rooms seem larger than they actually are. The trim should be plain and unmoulded, with slightly rounded corners. Built-in china closets, dressers, window seats, etc., make the houses more rentable and save the tenants buying certain pieces of furniture; a saving which they appreciate.

The Plan

With regard to the plan, much thought should be put into this, as it is here the chief value of standardization comes in. One good standard plan may be the financial and social success of a large group of dwellings.

In the first place, I would strongly recommend the most sympathetic treatment. The plan should be made "good enough for anybody," and not "good enough for those people." Coal is not stored in the bath tub if there is a coal bin closer to the stove. I feel that every one has the right to live not only decently, but attractively, and even in the smallest houses I claim that this can be accomplished by a good plan.

Sun is a prerequisite, and the plan should be so arranged that every room will have the sun for part of the day at least. This is helped by running the long way of a group of houses north and south, with the rooms on the one long side getting the morning sun and the rooms on the other side getting the afternoon sun. By having no blinds on the exterior, the old New England custom of shutting out the sunlight will be discouraged.

Air and ventilation are also very important, and there are two systems of obtaining this result; large rooms with unchanged air or smaller rooms with changing air. The latter is all that we can afford in this type of house, and to my thinking is just as good. Cross-ventilation can be obtained by making the plan only two rooms deep, with doors and windows opposite each other. Every room should have at least two large windows. By this arrangement we can get the minimum floor area for a single room down to 60 square feet and for a double room down to 100 square feet, which greatly reduces the size and cost of the buildings.

The next requisite in planning is compactness. The hall space should be reduced to a minimum, preferably only small square landings at the foot and head of the stairs. Small rooms can be made as livable as large rooms if good places are provided for beds and other large pieces of furniture.

Privacy in a plan can be obtained by having all the rooms face either the frontyard or the rear, and none of them looking directly into another house at the side. The front porches cannot always be managed, but there should at least be an air space under the whole house with the bottom concreted.

On the first floor there should be a small parlor facing the street if possible. This should be a separate room and not, as is often the case, with the front door and stairs leading directly into it. It then becomes a mere reception hall and cannot be conveniently used for a bedroom at night, as is often needed, especially in four-room houses.

Dining Room and Kitchen in One

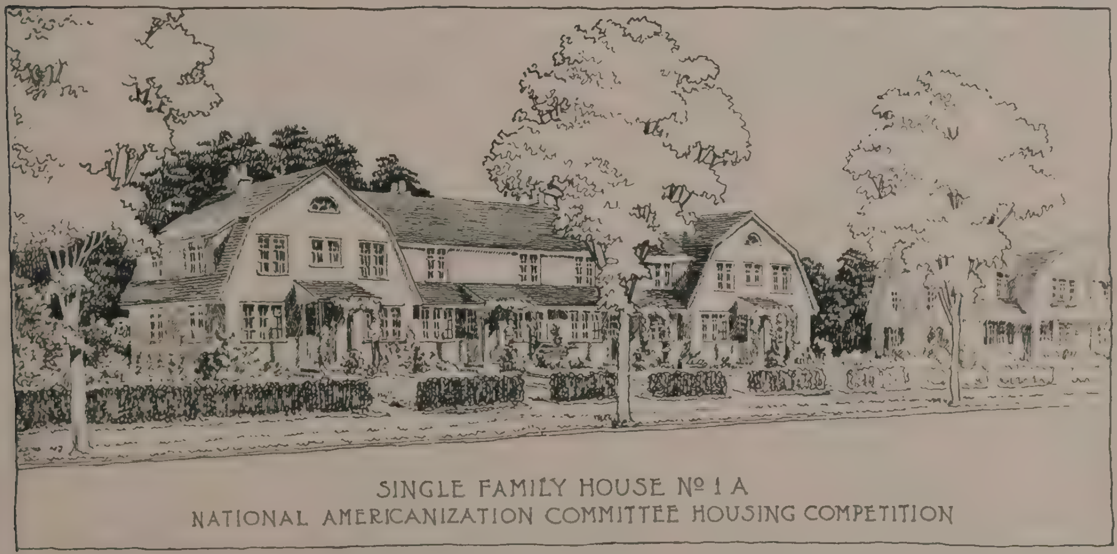
In houses of this type, there is no need for a separate dining-room. In fact it is preferable to combine the dining-room and kitchen into a fairly large room rather than to have two separate smaller rooms, as the large room will then be of sufficient size to accommodate a family gathering. If it is arranged properly with a well-lighted space for the dining table at one end, and all the cooking and washing at another well-lighted end, this arrangement works very well. There should, of course be two laundry tubs with covers as well as the kitchen sink. We have found that the ranges, refrigerators and fly-screens are taken better care of if supplied by the tenants themselves.

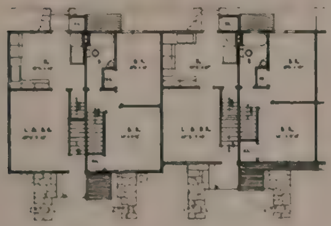
On the second floor, it is desirable if possible to have three small bedrooms rather than two large ones on account of the children of opposite sexes. The bath room should be on this floor. Water closet and bath tub are essential. The wash basin is also desirable, but we have sometimes when hard pressed omitted this to save plumbing and space, and therefore, cost.

The attic should be used only for air space over the bedrooms. Rooms in the attic are very hot in summer and cannot be well lighted or ventilated without dormer windows, which make the roof complicated and expensive.

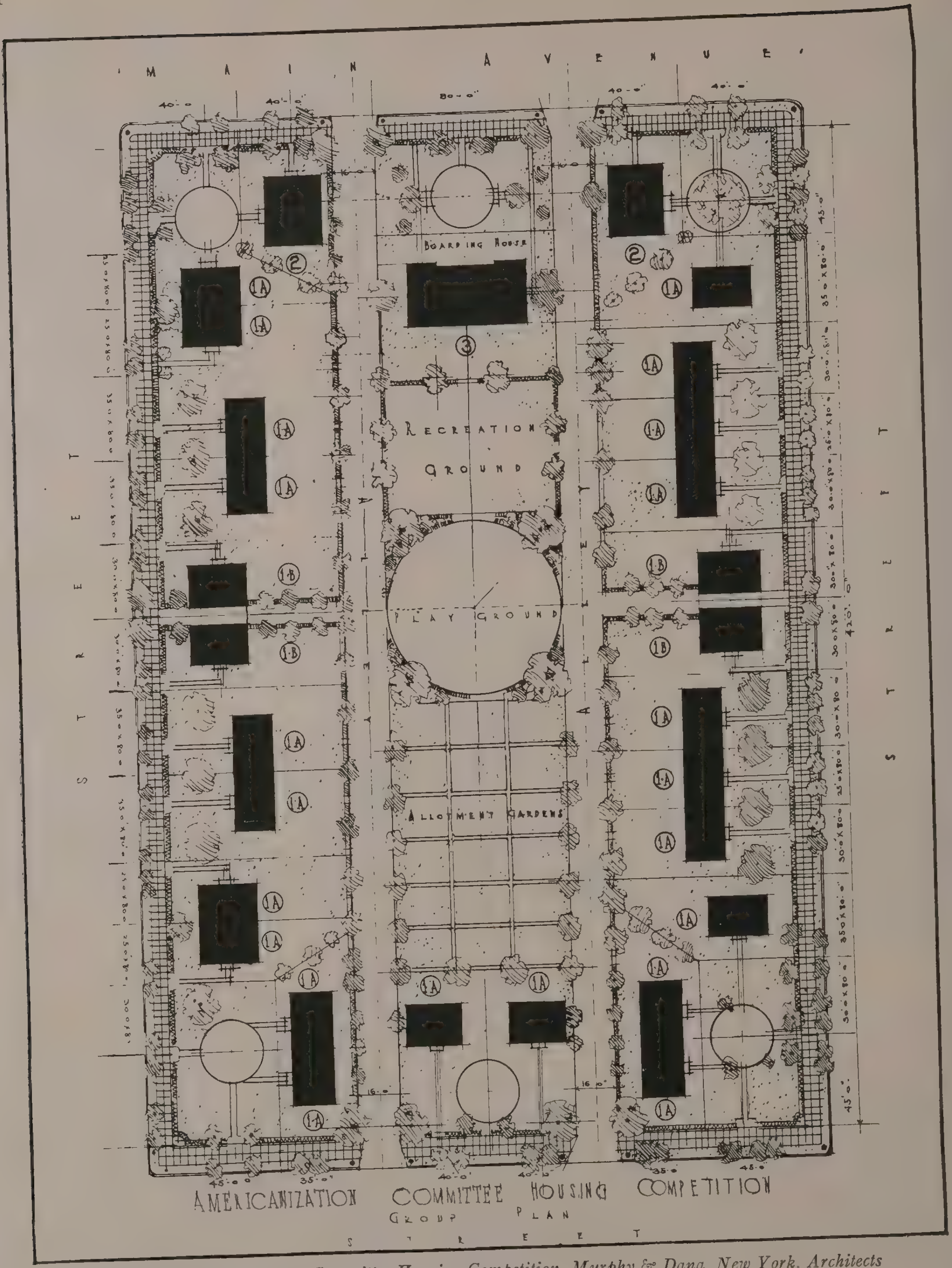
In conclusion, I wish to emphasize that we can get economy in construction only through standardization. As this standard scheme will be repeated so often with all its sins or virtues, is it not worth the services of a trained architect to get one economical plan with good proportions on the exterior?

This standardization of plan can be given variety by interesting grouping, different roof treatments and especially different color schemes. This last variation we have found is the most important of all, making identical houses look quite different and individually pleasing. Good proportions rarely, and good color schemes never, need cost more than poor ones.

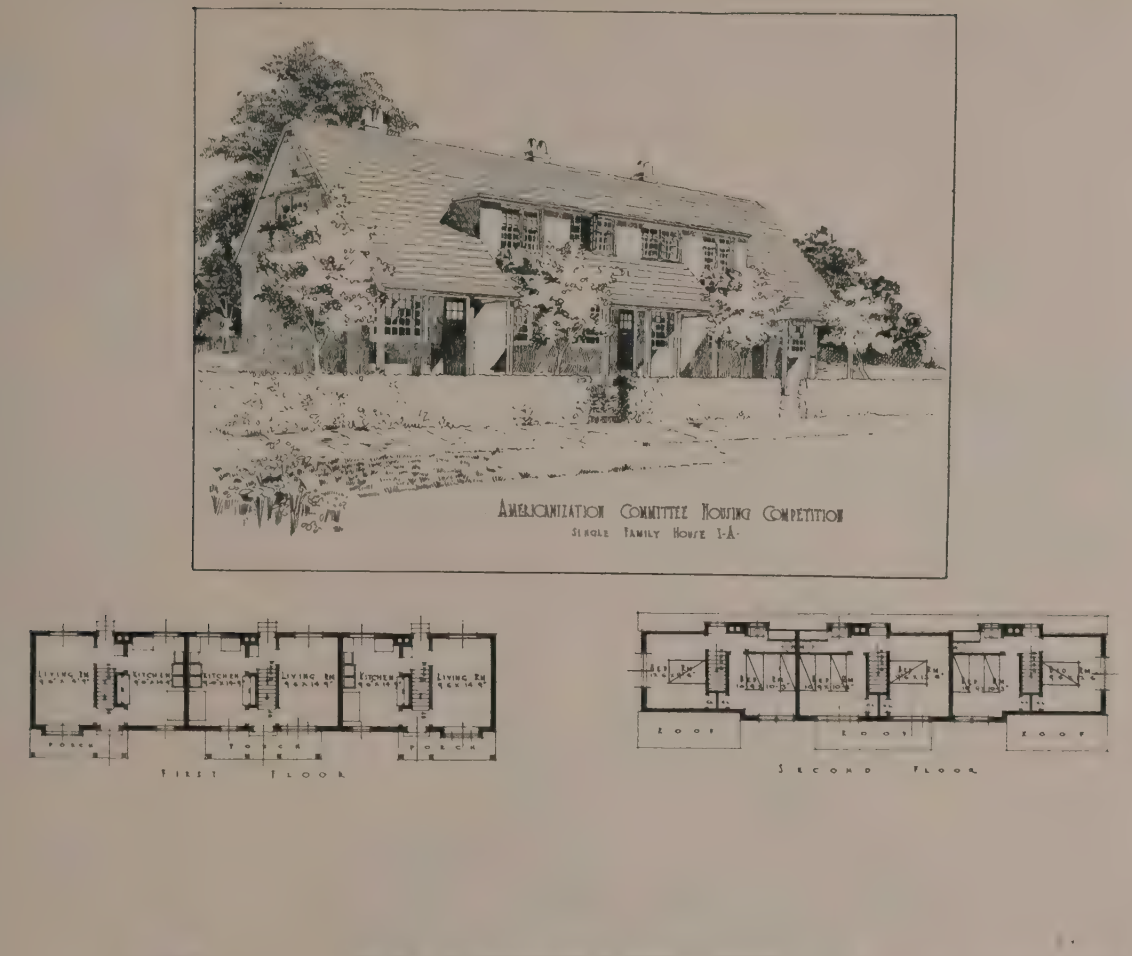

SINGLE FAMILY HOUSE Nº 1 A
NATIONAL AMERICANIZATION COMMITTEE HOUSING COMPETITION



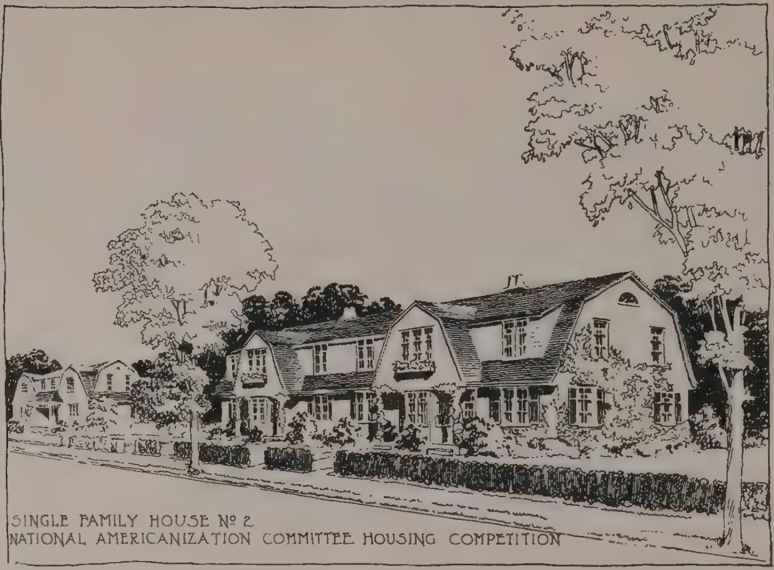
This, and a Number of Reproductions on Pages Following, Show Types of Houses Designed for the Americanization Committee Housing Competition, Murphy & Dana, New York, Architects



Plot Plan, Americanization Committee Housing Competition, Murphy & Dana, New York, Architects



Types of Houses and Various Floor Plans Designed for the National Americanization Committee Housing Competition


SINGLE FAMILY HOUSE No 2
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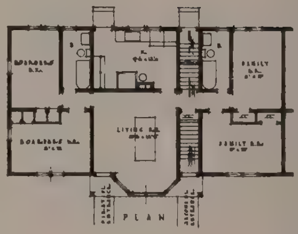

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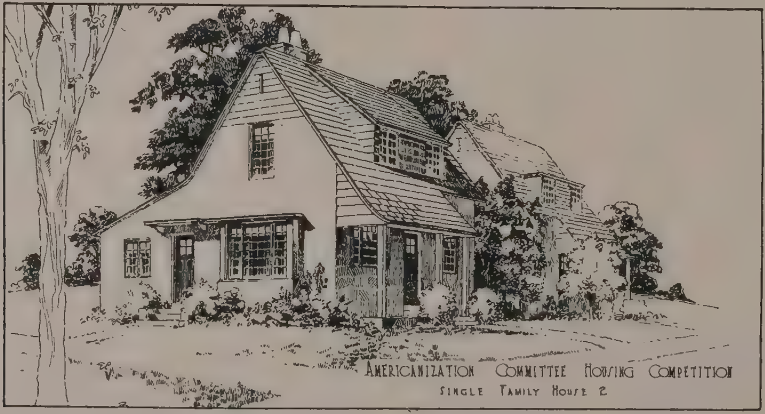

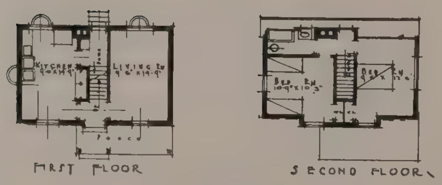

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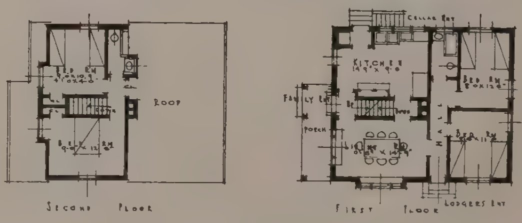

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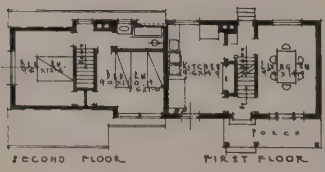

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Typical Houses and Floor Plans for the National Americanization Committee Housing Competition

METHODS OF ECONOMY IN HOUSING CONSTRUCTION

By CHARLES A. WHITTEMORE

IN considering the question of economy as applied to the housing problem, we are likely to lead ourselves into the common error of thinking that economy means the "least possible amount" as referred to expenditures. To any one who gives this subject careful consideration, the fallacy of such an idea must be apparent. True economy and false economy are as far apart as the poles. Unless we get the correct viewpoint, our whole discussion is likely to be distorted.

Economy in house building comprises various elements. Not cheap, shoddy construction whose life may be but a span of years. Not the cheap tar paper, temporary construction. Economy means low cost for materials of real value, with construction methods as good as may be; omission of unnecessary elements and luxuries and simplification of all possible processes.

No Economy in Cheap Shacks

Even though we are not now considering the phase of "economy" as applied in the psychological sense, we must here record the fact that there is no real economy in building a cheap shack, glossed over with a superficial dressing, and presented to a workman for his family to occupy at a price at which some real construction might be obtained.

Nor must we lose sight of the fact that the evolution of labor is not complete. The cycle is but partly rounded. The effect on labor of the shoddy houses, their attitude toward an employer who rents them such an apology for a home and who, rather than help them improve their conditions, offers them accommodations no better than the slums they know so well, must be most carefully worked out. The immigrants of yesterday may be skilled labor of tomorrow.

AMERICANIZATION COMMITTEE HOUSING COMPETITION
SINGLE FAMILY HOUSE I-A
GROUP OF SINGLE AND DUPLEX HOUSES

There are so many phases of the housing problem that one can only express ignorance of it all in claiming a complete solution. England spent time and money in solving it; the United States may profit by England's experience, although the conditions are so radically different. Up to the present the housing efforts may appear to have been conducted on the principle of "grab it all and get something done," rather than "offer the best solution."

A broad, general, comprehensive plan should be adopted and the government developments made along these lines. Once this has been established and the right type of development determined for each locality — Macon, Ga., does not require the same type as Erie, Pa.— the question of real economy is encountered.

For the purpose of this discussion we will assume the type selected to be the proper type for the place, and that all the details of the development which do not enter into the actual construction are happily arranged.

A First Consideration

One of the first considerations is the magnitude of the operations. None will question the greater economy in a large building project of, say, one thousand houses over a development of only two hundred. In the interest of this greater economy the government plans should be so laid that the houses be built in as large numbers in one contract as possible. Not that the numbers should be carried beyond or even quite up to the actual demand, but rather that the housing groups in territory as nearly contiguous as possible should be under one general constructive control. The net saving to the government, if such a method were adopted, would be large and would offset some of the expenditures in other directions which may seem unnecessarily extravagant.

In carrying on the development of one of these groups, an efficient organization is a vital necessity. No house can be built as a single, separate unit without the skeleton of an organization, and the functions of the unit are manifolded in the group. The organization may be called upon to purchase, sell, lease, mortgage land, buildings, real estate, etc.; may loan money, build roads, sewers, streets, etc.; may develop all the functions of a municipality and still be in the pursuit of economy in the general development. Such an organization must comprise many divisions and branches, and each of importance. Not the least of these would be the material purchasing department and the contracting and building department. On these two actually must rest the return on the investment. In their control lies the possibility of gain or loss from the standard of maximum economy. They must, therefore be carefully selected and efficiently managed. If the development be large in scope and number of buildings, the purchasing becomes more nearly a wholesale rather than a retail function. It might even be more economical to purchase standing timber instead of builders' finish. The extent of the possibilities in the direction of purchasing is limited only by the magnitude of the operation.

As has been noted, the careful selection of materials is of utmost necessity in order to construct houses such as should be built for the workmen at the various shipbuilding and munitions plants in the most economical manner. Careful selection does not, necessarily, mean selection of the grades of materials, so much as it refers to the kind of material which is most easily available in large quantities and which can be produced and delivered with the least possible delay. In this item again the purchasing department of the organization plays a great part, but before this matter reaches the stage of the purchasing department it must be very carefully investigated in laying out the original work. For example, in some localities stone is easily available for foundation work; while cement means additional transportation and, under the present conditions, the transportation problem is in such shape, that this factor should be eliminated in so far as possible. Stone, if available, can easily be hauled over the road by teams; while cement invariably means not only car-load but train-load lots if the development is of any magnitude.

Standardization of Materials

The materials having been carefully selected, the next important step in securing the best results from the standpoint of economical construction is in the nature of standardization of materials and details. It is not necessary, nor is it advisable, nor would it make a good development, to have all units exactly alike. A change of units can readily be effected without militating against the standardization of materials. In one development, for instance, there may be but two sizes of floor timbers used, these two sizes being of different lengths. The mill getting out this lumber could get them out in the exact lengths, and thus eliminate much of the hand work at the building. With an arrangement of this kind the rooms which would be of the same size in many units may be placed in different relative positions, and each house still have a very satisfactory plan.

The doors and windows can all be of standard form, detail, and size, so that one mill order put through in large quantities would produce the material for a very large operation. The classification of the materials at the building would be very much facilitated because all of the units, being of the same size and interchangeable, would require less scheduling and arrangement on the lot. So it is with the inside finish, which can be of a standard detail and yet varied in a large degree in its arrangement.

The flooring, the kitchen and closet fittings, the outside trim, fireplaces (where such occur) — all of these can be standardized, so that the same materials and the same sizes can be used in all different parts of the building development and eliminate a large amount of mill work. This same thing is true of all the different elements which enter into the house, such as the ranges, the plumbing fixtures, the piping, electric fixtures, hardware, etc. Purchasing the same type and style of commodity in large quantities possesses a great advantage over purchasing the same quantities of different types.

Eliminate Unnecessary Rooms

After the standardization of the materials has been effected, so far as the plans are concerned, a vital necessity is the elimination of useless and unnecessary rooms. In a private residence for an owner, when the residence is built as a unit by itself, many features which may be classed as luxuries can be added which, while not absolutely necessary, make toward the more pleasurable enjoyment of the residence as a dwelling place. Because these units are not essential, they may easily be eliminated in a development which is purely commercial and which is to provide houses for a class of workmen who have not previously been accustomed to the comforts and conveniences which even such a type of development will offer.

An architect frequently finds in laying out a private residence odd corners which are called storage closets or by some other name, but it must be a matter of careful study in the planning of housing developments to eliminate all odd corners and to make every inch of space in the house available for the actual living necessities. This, of course, will tend to reduce the size of the house and to eliminate some of the expense of the building.

Instead of kitchen pantries and butler's pantry and rear entrance, etc., arrangement can easily be made to accommodate all the materials usually served by these rooms in another way, without necessarily increasing the size of the house. For example, the kitchen walls may be built with cupboards, similar to what is known in the profession as a "Dutch kitchen." These cupboards do not take up valuable space and in many cases utilize space which otherwise would be wasted. So it is with linen closets and coal closets in the basement, etc. It may be of psychological value to allow the man who occupies one of these houses to build his own storage closets, creating a more personal interest in the house by the labor of his own hands. The unnecessary rooms and unnecessary closets and storage places count a great deal in the reduction of the cost of building.

Plumbing and Heating Systems

The heating, plumbing, and electric systems may be laid out on a very economical basis, or may be extravagant without being any more efficient. This requires careful investigation in order to determine the most economical layout of these various functions. In some cases it may be wiser to use the hot air type of heating system rather than steam or hot water. Location, weather conditions, climate — all have an important bearing on this work. In the colder sections of the country steam may be used, while in more temperate localities a furnace may answer all needs.

In laying out the heating system, effort should be made to use as few chimneys as possible. If two houses are built side by side with a single wall between,— the type known as "semi-detached,"— the chimneys may be built in this wall, and one chimney used not only to serve the heating plant, but also the kitchen stove in each house.

There also comes to mind the question of a central heating system, whereby one plant would distribute the heat to various buildings. This, of course, is desirable and economical where houses are built in blocks, and may even be desirable in the case of detached dwellings. The increased cost of laying pipes in the streets and underground to the buildings, as well as the heat loss due to imperfect insulation, and the fact that a flaw in the heating plant would inconvenience so many tenants, is likely to make it not so available in the cases of single dwelling units as in other types of development.

There are in existence now in some cities central heating plants which supply heat over a radius of miles, and in some cases these are economical as an investment, but, undoubtedly the merit of an installation of this kind is in the magnitude of its operation, and would not necessarily be available where the heat demand is small.

The plumbing system should be of the simplest type, but should be complete. In some housing developments the lavatory, usually placed in the bathroom, is omitted, and the occupants wash at the kitchen sinks. In the judgment of many who have studied this problem this is a case of first cost economy which does not prove wise. The people who occupy, or are likely to occupy, houses built under the program now in consideration are people who may not have been accustomed to the same type of living conveniences as those who now occupy a relatively higher station in life. They should, however, have an opportunity to acquire the better methods of living, and this can be afforded them without a prohibitive increase in the cost of the house development.

Simplifying Electric Systems

In installing the electric system, three-way switches should be entirely eliminated, as the convenience of this construction is greatly overestimated, and the cost does not warrant such an installation in any economical plan. The usual heating plugs and receptacles may also be eliminated, because the majority of the workmen not only do not understand, but probably would not require, devices of this sort. Where receptacles can be installed without any additional cost beyond the cost of the box and cover itself, it may be advisable to place one or two of these in convenient places in the house, but such installation would not be advisable if it means additional running of wires.

The simplification of all of the elements entering into house construction should be the uppermost thought in the mind of those who are making the development layout. Standardization alone cannot accomplish as much as may be required, while standardization accompanied by simplification will undoubtedly produce results which are eminently desirable.

The Choice of Floor Materials

It may be advisable in some instances, where the development will warrant to use floors of fire resisting material such as concrete, to use plaster which will not readily deteriorate or dent — such as the patent hard plasters. The use of these materials immediately permits of the adaptation of the hard plaster, etc., to the jambs and trim around doors and windows. The concrete may also be carried up to form the base around the room. Where concrete floors are used, however, there must be some other surface for a walking surface, and in this case wood or linoleum can be readily adapted.

There is a type of floor construction on the market which is not only economical, but which has all the merits of concrete construction, together with the peculiar characteristic of being of great tenacity in holding nails. A wooden floor may be laid directly on this material without the use of sleepers. The expense of this is very slightly more than the cost of wooden construction, and it presents a possibility of plastering directly on the under surface, eliminating furring and lathing, as well as the nailing strips for the upper floors. Materials of this kind should be carefully investigated and, undoubtedly, many adaptations of structural materials not now considered in the plane of economical construction may be used to advantage.

Economy in Construction Work

The economical construction of houses in such a development does not end with the careful selection and standardization of materials, nor with the consideration of the various details and elimination of the unnecessary features. This forms only the first step, and when the construction work is commenced, a very great factor for waste enters in. The actual construction work must be intelligently laid out, so that there will be no lost motion and no waste effort. As an illustration, consider a development on both sides of a single street, which we will assume to be large enough to accommodate, say, one hundred houses. If the work is carefully laid out, the excavation will be started at one end of the street and carried to the other limit as rapidly as possible. As soon as one excavation has been completed the foundation work will follow and be carried through to the limit of the development. With the completion of the foundation of one house, the carpentry, framing, etc., will start in and follow through. By the time the masons have completed the last foundation work, the first house will be ready for plaster and chimneys. It will be seen that in this way a smaller crew of men may be maintained on a development, and will accomplish, with systematic employment of labor, as great results in a given space of time as though a much larger force were employed with less intelligent direction.

There are, undoubtedly, a great variety of ways in which the work may be laid out differently from the example cited that may produce as efficient results, but it is obvious that the minimum number of workmen must be employed commensurate with economy of operation, and necessary to the elimination of waste effort or loss of time. This can be effected only by a very careful plan. A large corporation carrying on work of this sort would have differently organized "gangs" of men for each part of the work, and these men would proceed with their respective functions in one portion of the development, pass on until the whole work is completed, and then on to a new location, and, in this way, become so thoroughly accustomed to the type of work and the best manner of executing it that there would be considerable saving of time and effort in the final result. Intelligent planning of labor, as well as intelligent planning of material, must be a large factor in the house development.

Harmony Among Working Forces

In any organization for handling workmen of such a character as is here being considered, it is vitally essential that there should be close, intimate co-operation between the contractor, the laboring men, and the material man. A particular effort should be made to maintain an equitable, harmonious arrangement in all these branches of the work. The tendency of the times under existing high costs is to make the labor element somewhat restive, and any dissatisfaction on the part of the laboring men necessarily will produce results which are not of the character to be desired in the finished work. Every effort should be made, therefore, to see that the laboring men in connection with these developments are properly paid, are well cared for as regards their own living accommodations during the construction, and that the surroundings and employees in other branches of labor may be made as harmonious as possible.

The magnitude of the operation enters vitally into the cost, as it is obvious that the greater the number of duplicated units the less will be the individual expense. There is, however, an economical limit where this may not hold true. Such a limit would be in the instance of one organization handling large developments of, say, one thousand houses, in various locations at the same time. Here the increased cost of shipment to the various localities of the different items entering into the construction might operate seriously against the lower cost for each locality, were it being constructed as a unit by itself.

It may not be inappropriate to call attention to various forms of contracts which are being considered in operations of this character. The "cost plus" type of contract is being superseded, to a large degree, by types of contract which are more favorable to the speedy, economical completion of the work, without a possibility of friction between the owner and the contractor.

In the "cost plus" system by itself there is no limit to the expense, and this fact is reflected through all of the various sub-contracts. It is undoubtedly true that the present high prices of materials are directly due to a large extent to the existence of "cost plus" contracts.

A Better Form of Contract

A better form of contract is one where the cost of the operation is established; where the contractor is given a fixed profit, plus a proportion, say one-third, of the net savings he may make below the contracted amount. This form of contract has operated very satisfactorily in private professional practice, and has the advantage of giving the contractor an additional incentive in that, as the cost of the work decreases, his remuneration increases.

Another form is a contract in which the construction price is established and the contractor allowed a certain percentage. If the cost exceeds the contracted price, the profit to the contractor is reduced by a fixed proportion. If, on the other hand, the cost is less than the contracted price, the profit to the contractor is proportionately increased. The only disadvantage of this latter type lies in the fact that no special provision is made for extra work which was not contemplated at the time of the contract; while in the "cost plus" type and in the "first cost plus percentage" type this contingency is well cared for.

The net result of the tremendous housing operations which are now, or soon will be, in full swing will undoubtedly be a readjustment of prices for labor and material, and a rearrangement of contract forms which will do away with the old gamble which contractors are called upon to assume.

Permanence an Important Consideration

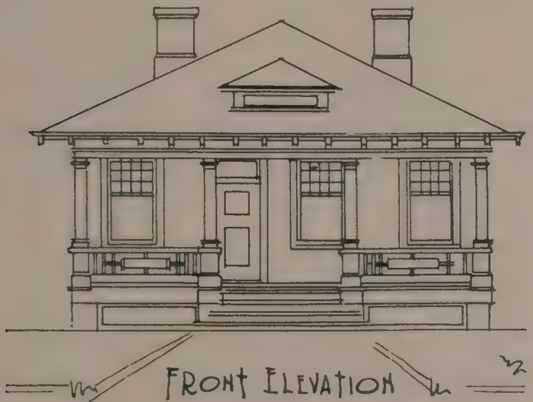
In this whole housing problem one thing of extreme importance which must be kept in mind is that the development should be arranged so as to be a permanent addition, if possible, to the locality in which it takes place. To do this, the houses must be made of a sound, reasonable construction and character, and provisions must be made to render the developments sufficiently attractive as to warrant a permanent investment for the laboring man. Primarily these developments are undertaken with the idea that the laboring man will purchase his own home and become a citizen of the community in which his work is located. It must also be borne in mind that as civilization progresses, the laboring class is being educated to a point far beyond that which it previously enjoyed, and a development of this sort must not in the least degree tend to reproduce the living conditions to which the laboring man was formerly accustomed. The psychological effect of making the laboring man feel that he is an essential part of the community in which he lives, and that he is wanted rather than despised, will go far toward making a stable, economical building and manufacturing condition in the country which no other course could possibly produce.

FAIRFIELD, ALABAMA

AN EXAMPLE OF THE FINER TYPE OF SOUTHERN PINE INDUSTRIAL VILLAGE. ONE OF THE UNIQUE TOWNS OF AMERICA THAT WAS BUILT BEFORE IT HAD A POPULATION

FOR the purpose of providing ideal and practical home surroundings for the army of employees of the great coal, iron and steel plants near by, the town of Fairfield, situated in the suburbs of Birmingham, has been developed on a scale heretofore unknown in southern industrial town building.

After a thorough study of the most modern examples of industrial town planning in Europe and America, a comprehensive plan, suited to local conditions, was prepared and executed. Progress of the work up to the present justifies the statement that Fairfield was not only planned to be, but is already shaped into a modern town that will make living conditions clean, healthful and attractive; that will not only make labor contented, but attract and develop a better character of labor than would be possible under ordinary conditions.



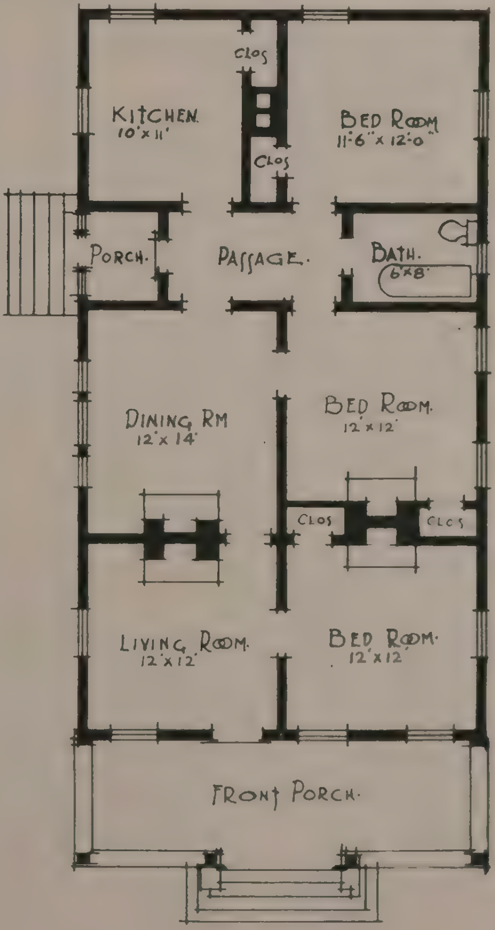
A Six-room Bungalow Type at Fairfield

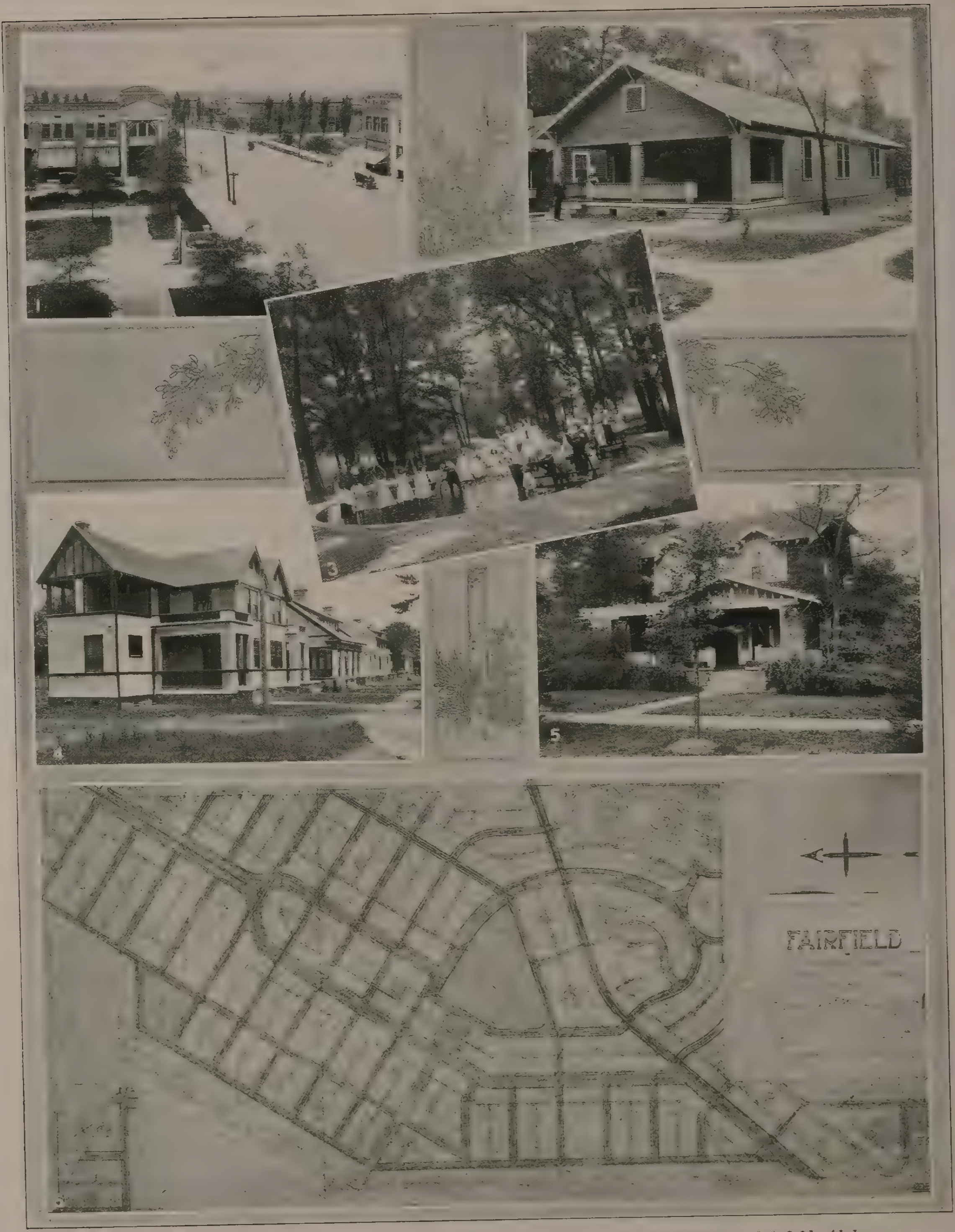
All improvements for health, convenience and cleanliness, such as sanitary and storm sewers, sidewalks, curbs and gutters, water, gas and electricity, have been provided.

An Elaborate Planting Plan

Ample provisions have been made for parks, playgrounds and recreation centers; an elaborate planting plan of every street and avenue carefully studied as to soil, size of trees and shrubs, color schemes, rotation of flowers, etc., has been worked out.

A Civic Center has been provided and sites reserved for proposed public buildings. All public and commercial buildings grouped





Civic Center, Recreation-Park, House Types and Plot Plan of Housing Development at Fairfield, Alabama around the Civic Center were planned in advance on a comprehensive scale, as a part of one great scheme.

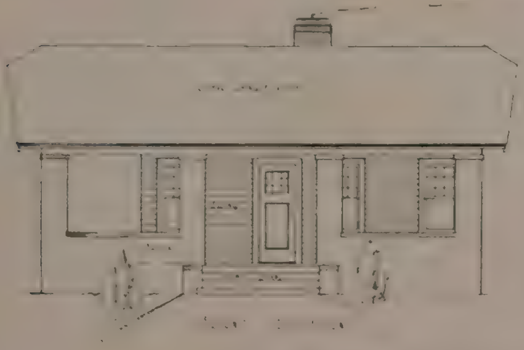
Modern houses have been erected by the Company, including furnace heat, hot and cold water, tile baths and porcelain tubs in the bath rooms. The front yards of these houses are planted in keeping with the planting on the streets. Walks, flower gardens, etc., are arranged to suit the surroundings.

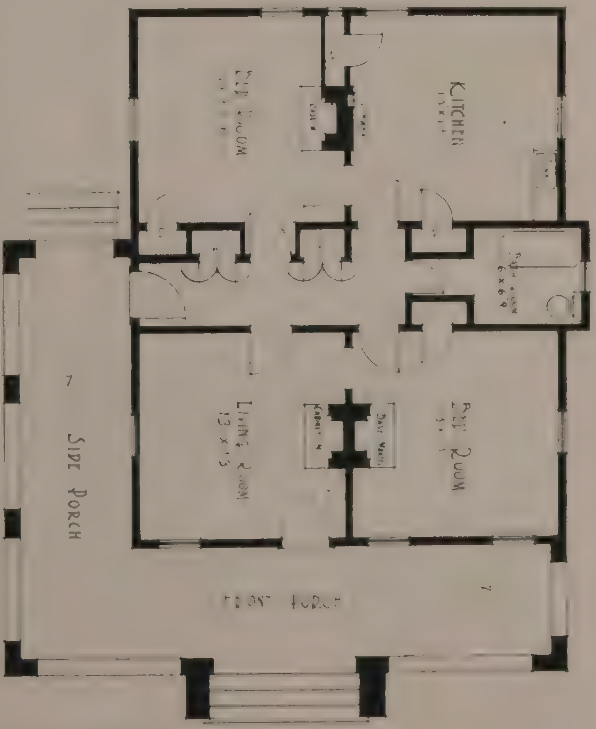
Harmony In Architectural Design

A study of the main streets of any American city will illustrate the value of the building restrictions at Fairfield. In cities an unsightly hovel frequently is perched next to a commanding office building, the former a rundown shack, and the latter a masterpiece of architectural beauty. One individual building may be artistic, but entirely out of keeping with its surroundings. Such conditions are not allowed to exist in Fairfield. The building restrictions are provided in every deed, and closely adhered to. The effect has been to produce a town which will appeal to the eye instantly, which is beautiful architecturally, and which will remain so in the years to come. Every building conforms in general style to the others and the "effect" will be maintained. All business buildings are built to conform to rules and regulations governing such buildings within the fire district of larger cities. In the residence sections, the building restrictions vary, according to locality or zone. The minimum cost of a house in Fairfield is $1,250. Each zone has its restrictions, but in general, no house can be erected closer to the sidewalk than the building line, 20 feet; only one house can occupy a fifty foot lot, etc. All of the restrictions make for beauty, sanitation and convenience. Each zone has a limit under which each house can be erected; for instance, in a certain zone, all houses must cost a minimum of $1,250. In the next higher zone, a minimum of $1,500, and the next higher, or third zone, $1,750, and so on.

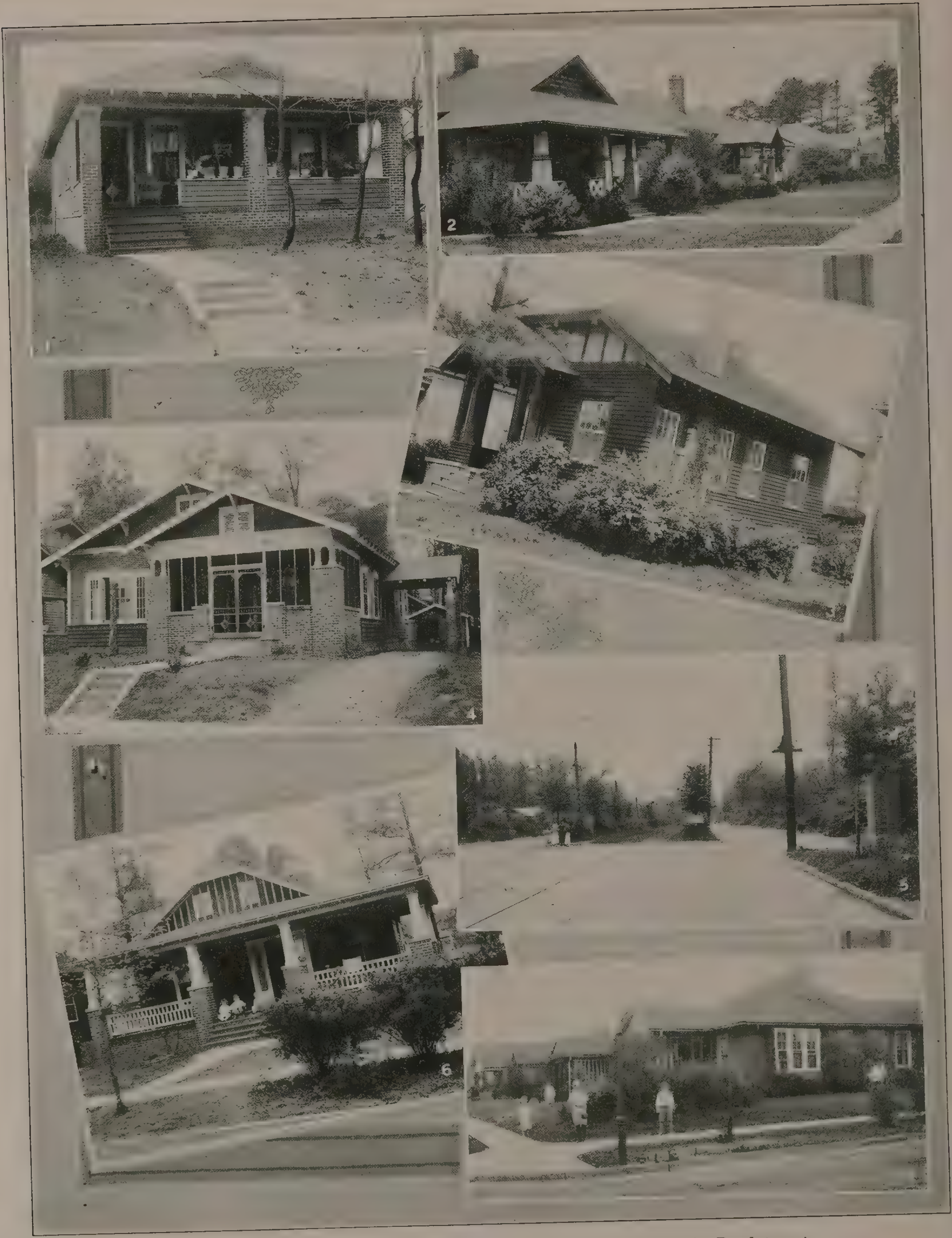
Topography Favorable to Development

The peculiar lay of the land at Fairfield lends itself to every feature of modern urban development. The level sections of the city, most conveniently located and accessible to the large steel plant, are desirable for small homes, apartments, etc.; also make admirable business property and sites for small manufacturing concerns, several of which have bought business property and erected plants. On the other portion of the property are beautiful, wooded hills, lending themselves most admirably to

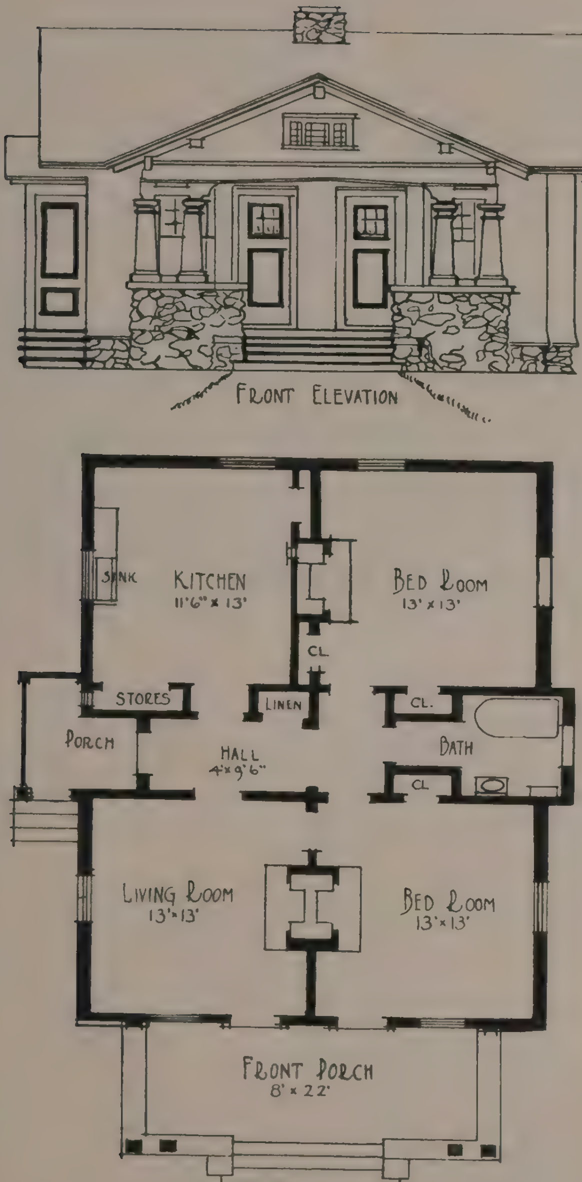




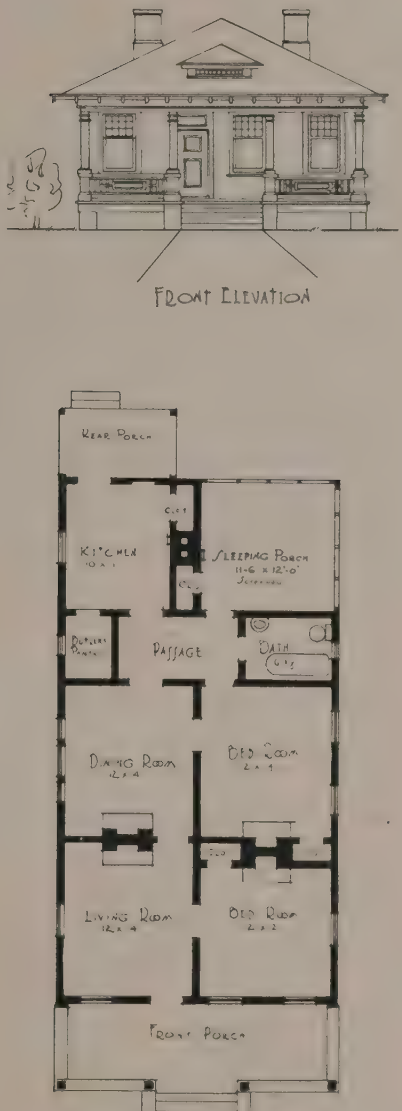
Front Elevation and Floor Plan, 4-room Bungalow, Fairfield, Alabama



Entrance to Fairfield, and a Variety of Bungalow Types in that Model Development

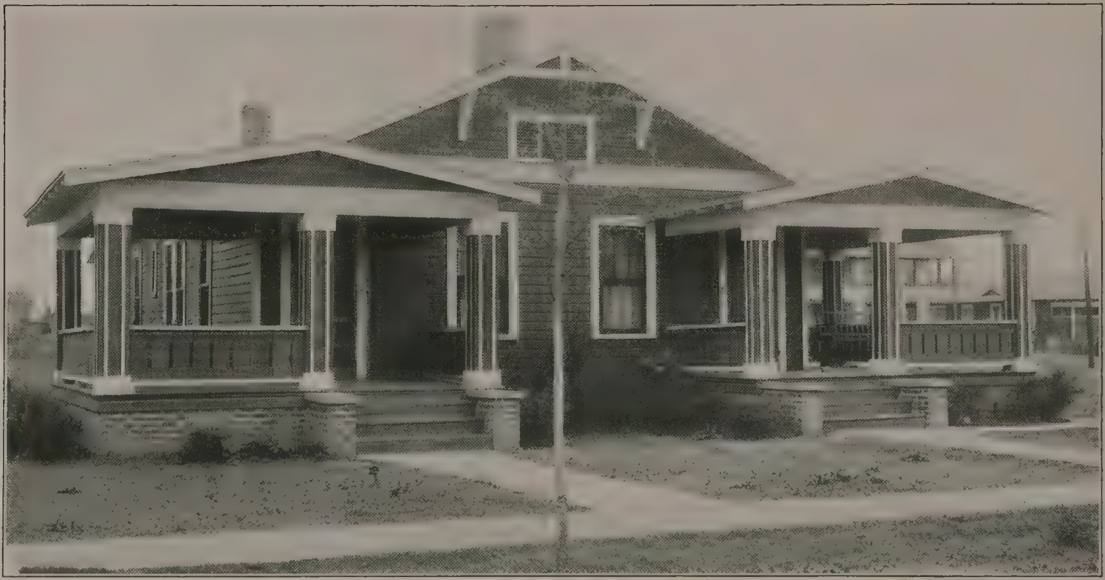


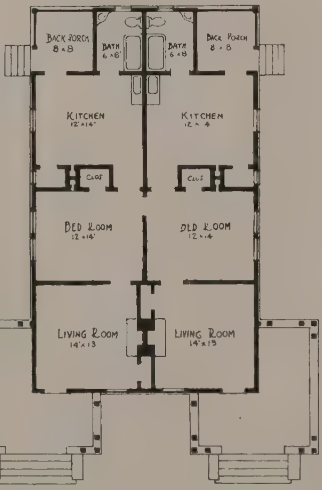
Front Elevation and Floor Plan of Four-room Bungalow



Front Elevation and Floor Plan of Bungalow of Five Rooms and Sleeping Porch

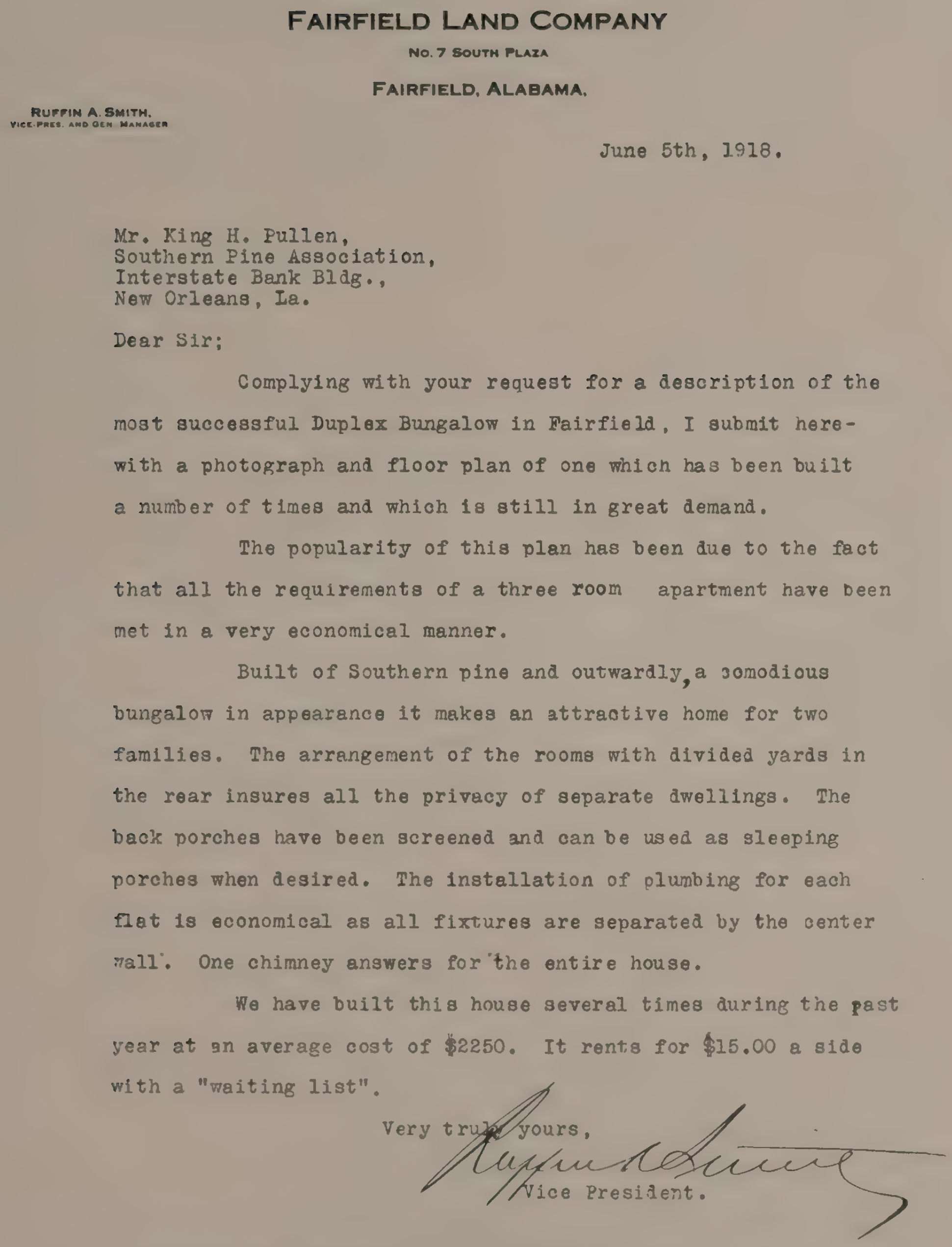
Bungalow Types at Fairfield, Alabama





FLOOR PLAN -

A Duplex Bungalow Type that Proved to be a "Best Seller"
In the Housing Development at Fairfield,
Alabama



FAIRFIELD LAND COMPANY
NO. 7 SOUTH PLAZA
FAIRFIELD, ALABAMA.

RUFFIN A. SMITH,
VICE-PRES. AND GEN. MANAGER

June 5th, 1918.

Mr. King H. Pullen,
Southern Pine Association,
Interstate Bank Bldg.,
New Orleans, La.

Dear Sir;

Complying with your request for a description of the most successful Duplex Bungalow in Fairfield, I submit herewith a photograph and floor plan of one which has been built a number of times and which is still in great demand.

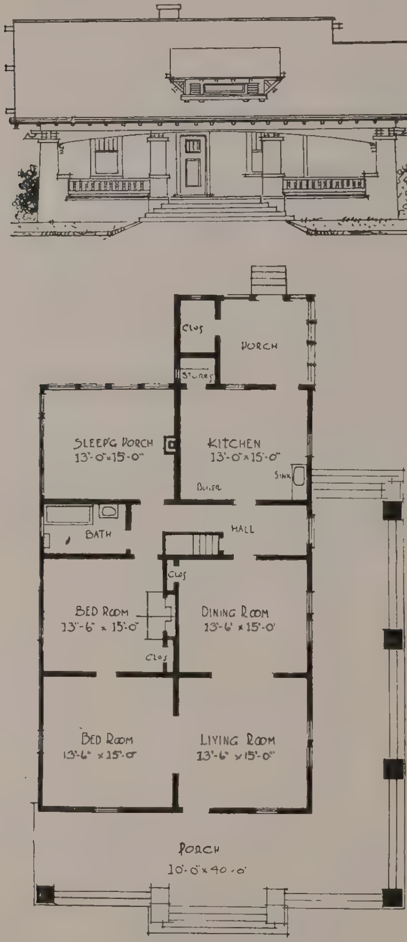
The popularity of this plan has been due to the fact that all the requirements of a three room apartment have been met in a very economical manner.

Built of Southern pine and outwardly, a comodious bungalow in appearance it makes an attractive home for two families. The arrangement of the rooms with divided yards in the rear insures all the privacy of separate dwellings. The back porches have been screened and can be used as sleeping porches when desired. The installation of plumbing for each flat is economical as all fixtures are separated by the center wall. One chimney answers for the entire house.

We have built this house several times during the past year at an average cost of $2250. It rents for $15.00 a side with a "waiting list".

Very truly yours,
Ruffin A Smith
Vice President.

The Duplex Bungalow Referred to in the Above Letter Is Shown on Page 108 the efforts of the landscape architect, and furnishing a high class residence section, the beauty of which is not exceeded anywhere in the South. It afforded the architect opportunity to make those wide sweeping curves that enhance the beauty of a residence section, and, at the same time, make the solution of the drainage and sanitation easy. Fairfield drains naturally towards the southwest, but nature was not left alone to care for this important feature. Probably no town in America has a more complete or adequate drainage and sewerage system.



Six-room Bungalow, Fairfield

There are more than 8½ miles of sanitary sewers, of all sizes. Sanitary outlets are provided for each lot. The sanitary sewers in nearly all instances run through the alleys, and are easily accessible. The fact that these sewers were laid in advance will do away with the necessity for tearing up the streets and alleys in the future.

That the religious life of the city might have encouragement, and that churches might be erected to meet the needs at Fairfield, five of the most valuable sites in the city were set aside to be the free gift of the first five denominations which would build, under conditions named by the Company.

The Company set aside several acres of the most valuable land it owned for a civic center and plaza. In the Civic Center there is a site for a proposed municipal building, a public library, a Y. M. C. A., a public bath, and a public school. Also there are provisions for a recreation park, playground and similar other features that make for civic betterment.

HOUSING TYPES FOR WORKMEN IN AMERICA

By CHARLES C. MAY, West 43rd Street, New York City

IN attempting any sort of survey of the various types of house which have been and are being used to house the workmen of this country, a distinction must be made at once between housing as it is and housing as it should be. Certain types of detached houses built by companies even within recent days of comparative enlightenment are too primitive to meet any set of minimum standards; certain other types, like the wooden three-decker, are in themselves obnoxious and will presently be legislated out of existence. On the other hand, it must be recognized that the virtue of a type of house is by no means necessarily in proportion to its number of rooms. Some of the largest houses have been planned with least care for convenience and for proper standards of living. There have sometimes been little regards for the prime essentials in workingman's house design — that is, for economy, for simplicity, for suitability.

Virtually every planning problem is a combination of architecture and economics. The proportions vary from pole to pole, from the play-palace of the millionaire, where the limitations are chiefly those of the architect's imagination, to the minimum dwelling for the laborer, where architecture is at every point circumscribed by economics, and the fanciful has no place. The architect's province in industrial housing is that of the planner who must show that his habit of mind, and his training have fitted him to grasp the economic as well as the aesthetic side of the problem; to prove that comprehensive planning, both in the community and in the house, conduces toward good design, a sound investment and a satisfying result.

Relation of Land Value and House Type

The type of house is bound up with the value of the land it is to occupy. It has been said that generally the poor man lives on expensive land and the rich man on cheap land. What the well-planned industrial community should do is to reverse the poor man's side of the proposition and give him the chance of living on cheap land. It is generally agreed that the goal toward which we should aim is the possibility of home ownership for the workman, and that in its best form this means an individual plot of ground, a detached house, and a bit of land on which to practice gardening. This ideal, so far as land is concerned, is sometimes more easily attained for the lowest paid wage-earner than for the skilled mechanic of twice his earning power — simply because of the discrepancy in land values. The common laborer in a southern mining town can, likely enough, occupy four times as much land as the fabulously well-paid munitions worker of Bridgeport. In some fortunate instances the land value is so small as to become a negligible factor in determining the type of house to be used. Here we may attain at once the ideal above mentioned,—individual plot and detached house. Yet a small house on a big lot is not without danger where land is likely to increase in value. The land may after a time become too heavy a burden for the worker to carry, and he may see in his abundance of real estate a chance to relieve the load by putting another house on the same lot with his own. Unless restrictions prevent, this tendency is always present, and it has in the past produced some of our worst slum conditions. Even where land is cheap, then, the area given to the individual house should be carefully proportioned to the grade of workman and his capacity to handle it.

In the majority of cases, however, the land value is a vital factor. Given its first cost, add an estimated charge for development, including amenities of planting, finished grading, etc., and a figure is obtained from which may be worked out the cost to the workman of a lot of the size proposed. Roughly, it may be said that the proportion of land cost to house should be from about 15 to about 25 per cent. In another way, working back from the price agreed upon as the maximum advisable for total selling price of land and house, there may be determined the number of square feet that can properly be allotted to each house, and, therefore, since depths of lot are usually determined beforehand, the typical lot width. Here the land value begins to bear directly upon the type of house. So long as the lot may be of a normal width, and the prospect does not point toward a jump in land value, the detached single-family house may be properly used. Where land is more expensive, the possible lot width becomes so narrow as to force that condition which we deplore in so many of our factory towns — rows of houses set so close together that the space between is a dark slit, of worse than no value to any one. The conditions may be helped somewhat by variety of grouping — different setbacks and different facings; but generally speaking we may say that when the lot size is forced below, say 35 feet, it becomes wise to reapportion the lotting so as to include semi-detached and group houses on narrower lots, thereby giving extra space to be used for detached houses on adequate lots. The variety thus gained is, besides, a great asset architecturally, producing groups of better mass and scale than can be had by indefinite spotting with the tiny single house units.

Suitability the Prime Essential

For the dwelling itself, suitability is the prime essential. It must be, first of all, suitable to the nationality of the worker, and since our common labor is largely recruited from foreign lands, this corresponds somewhat to the grade of worker. Distinctions in the several grades of houses occur largely in the living quarters, since in essentials a bedroom is a bedroom, whether the occupants be Hungarian or Italian, Pole or American. The point that is sometimes overlooked is the craving of the workman for the monumental in bedsteads. One is under the necessity, then, of either providing a wall space wide enough and high enough to take the high head of a double bed, or do as is now done in many parts of our country — install the built-in, disappearing type of bed as part of the household equipment.

It is in the kitchen that the greatest variations occur. Its size and importance in the family life may be said to vary inversely with the grade of the workman. When cooking, eating, and washing all go in the one room, to say nothing of whatever supervision there may be over the smaller sizes of children, it is easy to see that the room should be of ample proportions. When eating takes place in a separate dining-room, when washing consumes a smaller proportion of the housewife's time, the kitchen is used more nearly for its primary purpose and may be correspondingly cut down in size.

If we could always assume an intelligent use of space provided, the English arrangement would be most acceptable. We should have a small scullery — we might probably call it a kitchenette — in which would go on all the cooking and dishwashing, and nothing more. The large living room would then have one end dedicated to dining, and such a room would be really utilized through all hours of the day. It is an excellent arrangement, and it would work well — if the workman would so use it. But as yet the craving for a "best parlor" has not died in his breast. For the present the scullery, with living-dining-room combination, will appeal far more strongly to the higher grade mechanic or clerk with small family than to the majority of workmen with larger families and greater kitchen activities.

Consider the Rear Entry

Another feature which is somewhat affected by nationality, but is a pretty general requirement for all classes of workers, is the rear entry. A laborer or a miner, just so soon as ideas of decent living standards are adopted in his household, loses the privilege of entering his house proper, even the kitchen, direct from his work. The rear entry is his first stop, and there he must have hanging space for the grimiest of his working outer garments, before going inside to "wash up."

The house must, in the second place, be suitable for the locality. Obviously the housing problem in a copper mining town of New Mexico is a far cry from that of a New England munitions town. This affects in every particular the matter of construction, with which we are not primarily concerned now, but it affects also the type, size, and shape of the house. Where land cost is low, where the amount of winter heat required is at a minimum, it is as cheap or cheaper and perfectly practical to omit cellars, to spread out over the ground, putting a four-, five-, or six-room house all on the one floor. In a northern climate the discomfort and heating cost of such a type would render it quite out of the question. Similar considerations affect the matter of roof slopes, eave projections, etc.

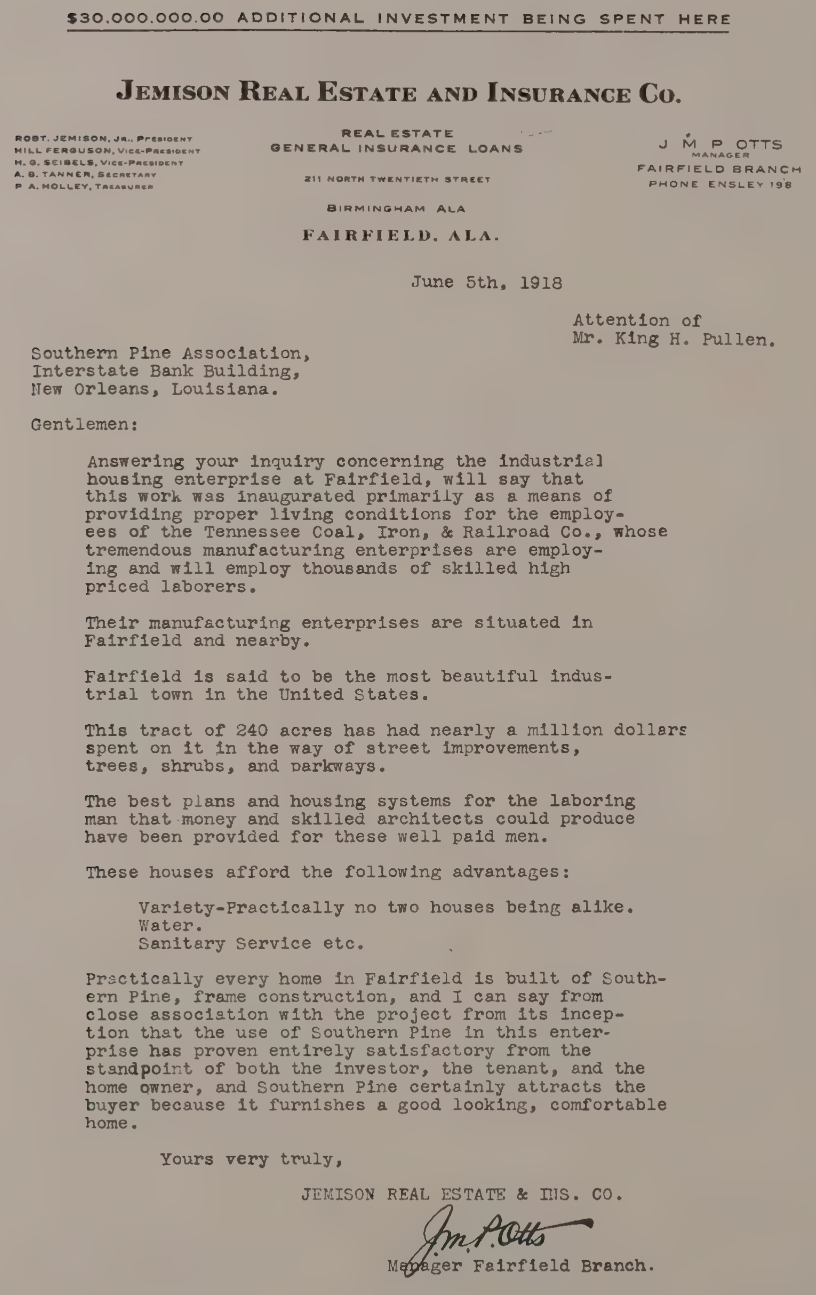
The workman's house must, furthermore, be suitable in size for its purpose. There is a growing conviction that the general average of low-cost houses is too large rather than too small. Superfluous space always suggests a boarder to occupy it. Heretofore no general attempt has been made in planning the house to make proper provision for the boarder, with the result that his presence has invariably tended toward lowering standards of household living. Mr. Ham, of the Bridgeport Housing Company, advocates making it possible for the worker's house to grow up with him as his family and presumably his income increase. This he would do, not by building successive additions to the original house, but by providing houses of graded sizes, with a larger proportion of small ones (that is, of five rooms or less) than is usual at present, and by making it easy for a man to change his holding as the need arises.

The Bridgeport Housing Company has done this very thing, at least so far as the provision of the several sizes is concerned, in its Connecticut Avenue group, where the range reaches a minimum size apartment of two rooms. These occur in a low, two-story group. In its future enterprises, however, it will probably include very few, perhaps, none, of these two-room units. The tendency is to attract the floaters, who move in and out at no notice, cause damage and depreciation to the property, and prove generally undesirable; while the young married couples, or the older ones without children, take more kindly to the three- or four-room units.

The Single Family Detached House

For the single family detached house the four-room unit comes near to being the irreducible minimum. And here, speaking always of the family group with children of both sexes, the rooms should be arranged as one large living-kitchen and three bedrooms. The program lends itself to good architectural treatment for conditions where one-story houses are advisable; it is, of course, very difficult, architecturally, where two of the bedrooms must be on a second floor.

The five-room house is the first grade where size and arrangement give some degree of latitude in planning. Accepting for the normal family the three-bedroom requirement, puts the sleeping rooms in a majority over the living, and this seems unavoidable unless the boys may be permitted to sleep in a transformable day room. When we advance to the six- and seven-room houses, we enter the range of actual architectural planning, with a multitude of given conditions and requirements, which, taken with the economic side of the case, challenge the most skillful designing. Up to the present there has developed a wide variety of plan and arrangement, but some few features are common to the best of them. The all-inclusive requirement of simplicity is one that



$30.000.000.00 ADDITIONAL INVESTMENT BEING SPENT HERE

JEMISON REAL ESTATE AND INSURANCE CO.

ROBT. JEMISON, JR., PRESIDENT
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211 NORTH TWENTIETH STREET
BIRMINGHAM ALA
FAIRFIELD, ALA.

J M P OTTS
MANAGER
FAIRFIELD BRANCH
PHONE ENSLEY 198

June 5th, 1918

Attention of
Mr. King H. Pullen.

Southern Pine Association,
Interstate Bank Building,
New Orleans, Louisiana.

Gentlemen:

Answering your inquiry concerning the industrial housing enterprise at Fairfield, will say that this work was inaugurated primarily as a means of providing proper living conditions for the employees of the Tennessee Coal, Iron, & Railroad Co., whose tremendous manufacturing enterprises are employing and will employ thousands of skilled high priced laborers.

Their manufacturing enterprises are situated in Fairfield and nearby.

Fairfield is said to be the most beautiful industrial town in the United States.

This tract of 240 acres has had nearly a million dollars spent on it in the way of street improvements, trees, shrubs, and parkways.

The best plans and housing systems for the laboring man that money and skilled architects could produce have been provided for these well paid men.

These houses afford the following advantages:

Variety-Practically no two houses being alike.
Water.
Sanitary Service etc.

Practically every home in Fairfield is built of Southern Pine, frame construction, and I can say from close association with the project from its inception that the use of Southern Pine in this enterprise has proven entirely satisfactory from the standpoint of both the investor, the tenant, and the home owner, and Southern Pine certainly attracts the buyer because it furnishes a good looking, comfortable home.

Yours very truly,

JEMISON REAL ESTATE & INS. CO.

Jm. P. Otts

Manager Fairfield Branch.

must apply to every detail: to the shape of the building (for a given area, the square has the least exterior wall); to framing of beams and rafters; to layout of partitions — the least possible number of breaks and jogs; to disposition of plumbing, so that the piping may be most direct and shortest; to the stairway, that the run may be easy to frame and put together (a straight run is of course the cheapest); to hall spaces, that they may be so small as to be economical, but not so cramped as to be a nuisance and a damage; to closets, that they may be properly placed in relation to the rooms they serve, and of a shape to give maximum service in minimum space.

The greatest variation among low-cost cottages exists in the placing of the stairway. Probably a majority put it along one side of the living room on an outside wall. This is often a pleasant feature in a room which tends to be featureless, but it has disadvantages: the room requires more heat, and is always subject to drafts; it makes the living room a passageway, and in the case of a boarder, usually involves giving him one of the family rooms. The next most frequent placing of the stair is in a little entrance hall at one side of the house, with access to living room at the other side. This results, in houses of three living rooms, in an impression of ample scale, because the rooms may be thrown wide open into each other and count at their biggest. On the other hand, these stairs occupy one of the good corner exposures of the house, thereby preventing its use by a bedroom. This exposure is sometimes stolen back by gaining a high-silled, recessed window in the bedroom above, in as wide an alcove as head room on the stairs will permit.

For a Minimum First Floor Hall

If we are willing to accept the small house as a small house, and not try to magnify its apparent size by throwing its first floor all together, the central stairway has decided advantages. It gives a minimum first floor hall, openings to living-dining-room at one side, to parlor (or bedroom) at the other, and a straight run of stairs. Its economy of hallway is at a maximum in the house of only two bedrooms on the second floor. There the hall at the top is like that below, with merely turning space into the bedrooms and bath.

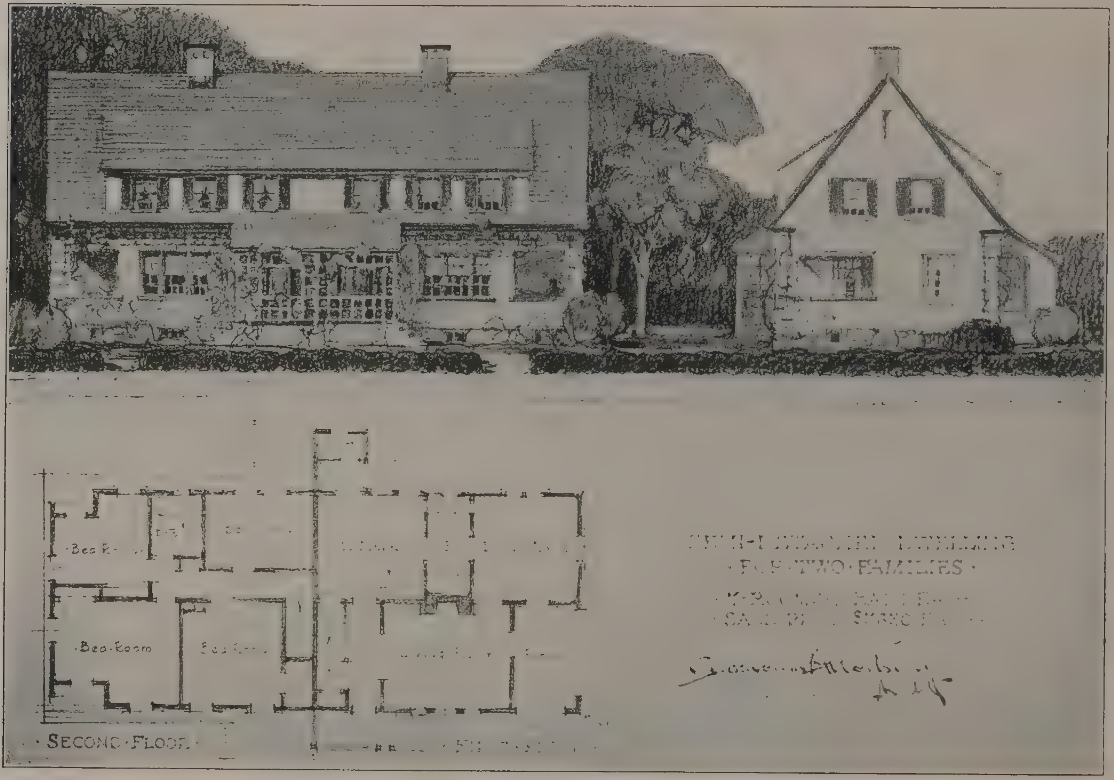
For the semi-detached house, most of the accepted types are derived more or less directly from corresponding grades of the detached house. There are, however, several points at which the existence of the party wall raises special points. If houses are for rent only, it is desirable to concentrate plumbing into one stack for the two houses; it is well to get stairs next the division line where light is least, thereby saving the good exterior corners for living quarters; it gives better privacy to keep living porches away from the party line, so that each family may have opportunity to live unto itself insofar as it wishes to do so.

The semi-detached house is, in most cases, superior from the housing standpoint to the two-family house — from the architectural standpoint, vastly so. The lessened sense of privacy, the usual difficulties of access and responsibility, are compensated only by the most exceptional circumstances and the most careful planning.

Limitations of the Group House

The group house, or terrace type, is becoming more nearly standardized than any of the others. It is generally agreed that such houses, with light and air confined to two sides, should not be more than two rooms deep. Anything more results in the pocketing of the interior room, and shutting off cross-drafts from the others. Here again the stair arrangement is the crux of the planning problem. A very compact and economical plan is that in which stairs go up directly from the main entrance, with a parlor-bedroom at the side and a single room, the living-kitchen, at the rear. Upstairs is equally direct and simple. The difficulty seems to lie in the use made of the downstairs front room. If as a parlor, well and good; but if as a bedroom, the necessity of passing through it to get to the kitchen from upstairs is a serious defect.

Another type places the stairs in the center of the house, running crosswise. This has the advantage of not requiring much framing of beams, and it gives the front bedroom of the second floor the benefit of the entire width of the house. On the other hand, to get the separate access to the living-kitchen, there must be a hall leading back to it the full depth of the front room. While on plan this appears a waste of space, every one must realize the necessity, even in the minimum-sized house, of a certain amount of hanging space for coats, etc., which will be so used, in any event, in the rooms themselves if no other space is available.



A Two-family Type House at Indian Hill, Worcester, Mass. Grosvenor Atterbury, Architect

INDIAN HILL

AN INDUSTRIAL VILLAGE AT WORCESTER, MASS.

GROSVENOR ATTERBURY

Town Planner and Architect

By CHARLES C. MAY

A DESCRIPTION of the settlement which the Norton Company of Worcester, Mass., is building for its employees might well take for its text, "A city that is set on a hill cannot be hid." Certain it is that if the development is successful, its attractions will become a beacon to the countryside for miles around; if it should fail in any considerable degree, its shortcomings will become a lesson that he may read who runs anywhere in the vicinity.

Which means that Indian Hill is the possessor of a most commanding site. Removed by several miles from the heart of the city of Worcester is Indian Lake, a sheet of water perhaps a mile and a half in length by half as much in width. Its banks have not, as yet, been reached by industrial development and lie happily unspoiled — a challenge to the city of Worcester for appreciation and preservation.

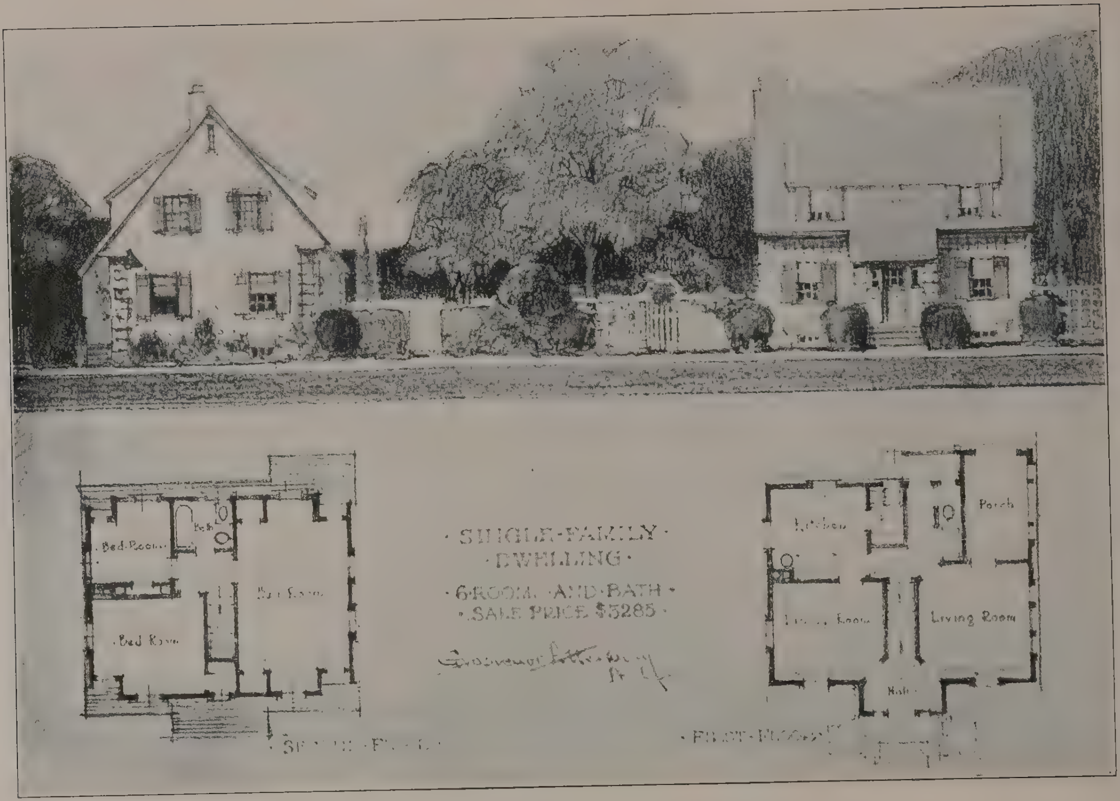
Indian Hill itself — the "thirty-acre tract," as it has been named during the development — occupies the lofty ridge that thrusts its point out toward the head of the lake. Before it lies the open country in opulent variety in all directions, to the limits of perhaps 300 degrees of the circle. Holding the northern end of the lake, the major part of the hillside slopes toward the south, with the higher wooded areas at its back for buffers against the north winds. This is a detail of not merely sentimental value, for in these latitudes the land of extended outlook is also the land of bitter-cold blasts.

Back from the northeastern corner of the lake and within the angle between the main railroad and its branch, lies the plant of the Norton Company, of which the area hardly remains constant from month to month, so rapidly have its physical requirements expanded within two years. A statement as of August, 1916, would place its extent at twenty-six and two-thirds acres — a modern plant manned by some 3,700 employees. Primarily for the adequate housing of these men and their families was formed the Indian Hill Company, a subsidiary of the Norton Company, entitled under Massachusetts laws to acquire, develop and dispose of real estate. It is accordingly the Indian Hill Company which has brought together and is now engaged in developing holdings of some 116 acres, of which Indian Hill proper forms the first demonstration. The development, as has been said, is primarily to provide adequate housing for its employees, with a view toward individual ownership, permanency and contentment in employment, and resultant general efficiency. In these objects the company is self-seeking only in the same degree that the word might be applied to those others of its institutions for the office workers — the auditorium, the gymnasium, the rest-periods, the hospital, the tennis courts, to name some of them at random.

Secondarily, and in no sense selfish, was the company's hope that in wrestling with their own housing problem they might at the same time make some contribution toward the solution of the wider problem of workingmen's houses in general.

The Community Plan

The plan that has actually been worked out by Grosvenor Atterbury of New York, town planner for the development and architect for



Single Family Dwelling, Indian Hill

Plot Plan. Indian Hill, Worcester, Mass.

the houses, is the result of careful study of all the conditions. It seeks to secure the best possible grades for the main circulation roads, and only slightly steeper for the minor, non-traffic ones; it shows deference for the natural features of the site in conformation, woodlands, views and exposures; it seeks to provide quiet by-paths away from the lines which will one day be thronged with streams of traffic, in order that in these spots may always be preserved that domesticity, intimacy and hint of aloofness that belongs rightly to cottage surroundings.

The main lines for traffic, as projected, are Indian Hill Road and the street that climbs up the shoulder of the hill after crossing the railway cut and circling in a double sweep to enter the Community Center from either side. This latter approach anticipates the creation of a shore drive which, it is to be hoped, will some day skirt the edge of the lake, where it would form a connecting link between the areas on the east and west. This shore drive would furthermore preserve the banks of the lake to the city for all time and prevent private exploitation in a manner that might injure the entire section.

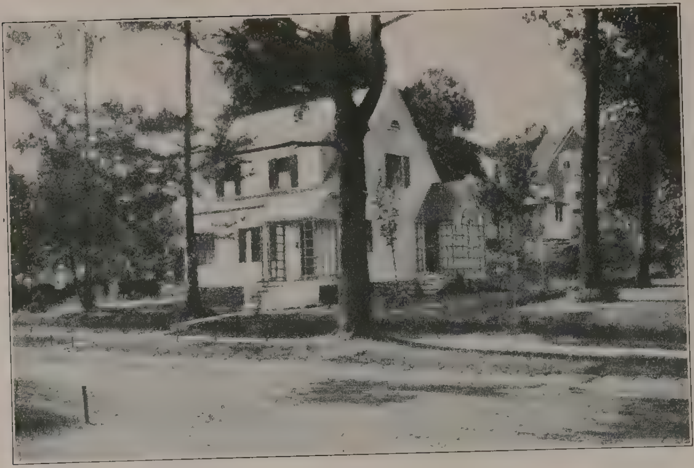
The Community Center is placed at a point which combines the geographic location needed for such a gathering place, with other desirable elements. It holds the salient point on the shoulder of the hill, where grades are least difficult to manage; it will witness the passage of nearly all the through travel of the section; it commands a magnificent view, which should in itself prove a magnet to attract the strolls of the villagers. To enhance the charms of this outlook the side of the square toward the lake will be left open and treated as a public terrace. Footpaths will also be brought down the steeper slopes of the hill toward the Center in order to provide easy cross-cuts and thus make it readily accessible for pedestrians, shoppers and strollers.

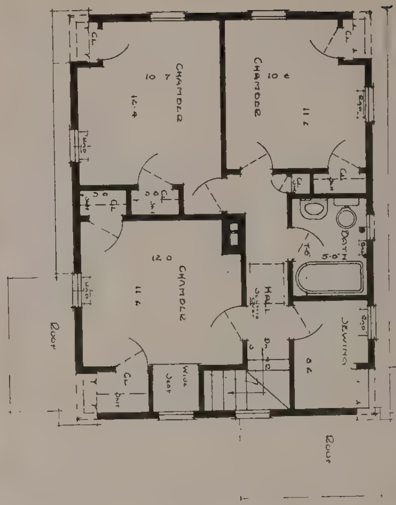
The secondary streets are, in the majority of cases, contour roads. Looked at merely as a paper plan, the layout is definitely lacking in cross connections. But, studying the topography, one realizes that gradients so steep as these would be impossible for any but travel on foot, and that to create roadways suitable for vehicles would entail expenses quite prohibitive in a development of this character. The footpaths just mentioned are therefore by way of a compromise to break up the long blocks.

When it was first proposed to develop the lovely little grove which is now Nashoba Place in the manner of a close, it was an open question whether or not such an arrangement would appeal to the American buyer (or to the foreign-born employee grown American in tastes). Experienced real estate men have told us repeatedly: "First of all, give each one his full share of frontage on the building line. The American loves his look at the asphalt." Mr. Atterbury had faced this situation before in the planning of Forest Hills Gardens. There, despite pessimistic views as to American discrimination, groups involving so-called "rear" housing units were liberally used, but with some fear and trembling for the outcome. Actually, the very first sale was a house that had greater setback, less view of the asphalt; from that day on there has never been a doubt of the salability of grouped units, in Forest Hills.

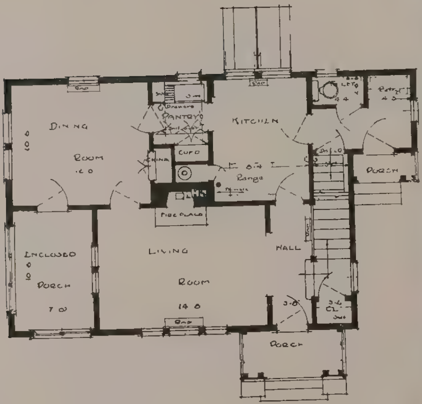
The Same Problem, with a Difference

At Indian Hill the question was reopened in a development of a different character. Here the provisions of public amenities were to be more limited, the cost of private houses far less, the whole project more circumscribed by financial limitations. Yet here, too, where the very modest little house could rely upon little landscaping or "trimmings" to dress it up, the result has been identical with that in Forest Hills. Faith has been justified in believing that in most cases the buyer (be it of a house to cost $3,000 or $10,000) needs only to be shown. True, he lacks usually, in both cases, the imagination to see it for himself, exactly as he lacks the training to read an architectural elevation; but given some one to put the demonstration on the ground before him,

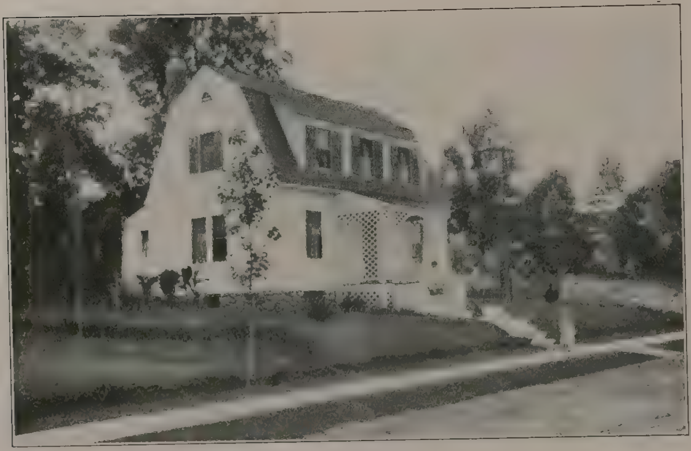




Type N-2 House and Floor Plans



A Typical Bedroom



An Individual House of the Smaller Type

House Types and a Typical Interior at Indian Hill, Worcester, Mass.

and perhaps to explain a few of the whys, he is by no means slow to grasp the truth and to act upon it. Nashoba Place has accordingly been successful from the first; fully occupied, tastefully planned, delightfully sheltered, it already has some of that quality which, a few years ago, one sought vainly in this country and found only by traveling to England.

Construction work at Indian Hill has heretofore been confined to dwellings — some fifty-eight of them, built in two operations during the summers of 1915 and 1916. Enough has been done to give a suggestion of the ultimate look of the town — white walls seen among the trees, roofs gray green to unify the composition. The white was selected because of its consistency with New England traditions, and of its effectiveness, viewed from close at hand or from a distance, and because, unlike any other color, it can be repeated in a great number of cases without becoming tiresome. The roof color is the same throughout, as we have said, to bring unity into the composition. Where a collection of houses can be seen all together and from a distance, this common bond between the individual units is of the greatest value; it is like the family resemblance that marks them all one kindred. Only by this and similar evidences of collective planning can there be produced dignity and carrying power in an aggregation of which the units, taken singly, must be too small or too insignificant to be effective.

Detached Houses Liked Best

This problem is peculiarly pressing at Indian Hill, since the number of buildings other than tiny cottage units, is at a minimum. For, by a curious psychological kink, the grouped party-wall dwellings that are the rule in English garden cities are usually rejected with scorn by the industrial worker. He pridefully insists that his dwelling shall be placed on his own lot, with free spaces all around, and shall be guarded to the last foot from any loss of power in its proclamation of individual ownership. Even the two-family semi-detached house, although planned to give perfect privacy, exposure and open spaces, does not as yet appeal strongly to the buyer, except in special circumstances of relationship or a David-and-Jonathan intimacy between two families.

Further development will, of course, work vast improvement in that there are already provided site reservations for several buildings of adequate mass in different sections of the property. There is the Dining Hall, at the fork of the streets as one enters Indian Hill from the plant; the Satucket Inn, really an exalted boarding house for bachelors, embodying the features of a club; a similar institution for the bachelor girls of the office force, a chapel, a recreation hall. Considering that these are quite apart from the buildings that will form the three-sided enclosure of the Community Center, we may feel that the amount of reservation for larger buildings is generous enough to go far toward overcoming the handicap of the minuteness of the individual units.

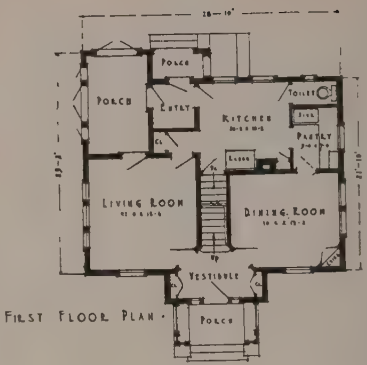
Generous Spaces for Playgrounds

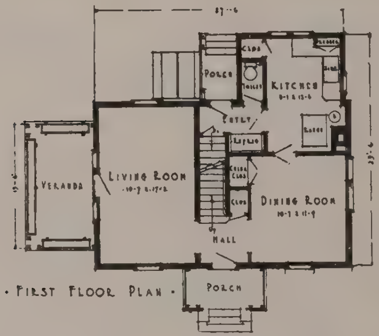
In a countryside as open and unrestricted as in Indian Hill today, it would not be surprising if it were difficult or impossible to prove to the promoters the wisdom of large reservations for park areas. Fortunately this has not been true. It is the policy of the Indian Hill Company to preserve generous tracts of high, wooded land as a playground for the villagers; certain parts of the lake shore will doubtless be developed for bathing, boating and water sports; and over along the east base of the hill will be the general recreation center. A comparatively slight amount of modeling will make the side hill into a natural amphitheater, before which will be spread out the baseball field, the running track and their adjuncts.

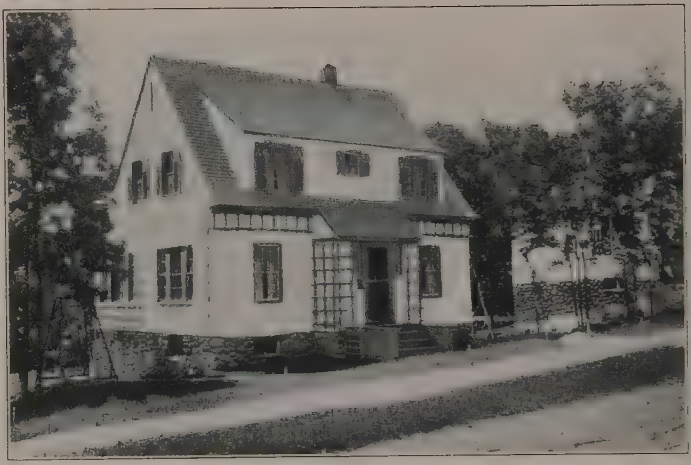
Besides park areas for the general public, serious consideration is being given to the question of providing small parks in the interiors of various blocks as a play space for the children from the homes surrounding.

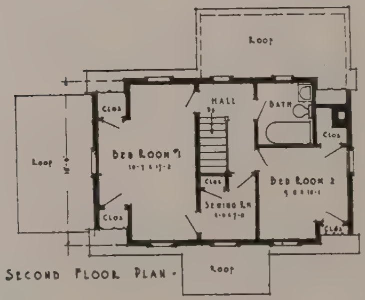
The numerous advantages of this system — safety, accessibility, economy of land value, ease of supervision — are all so familiar and so generally recognized that comment is uncalled for.

Street Scene, Indian Hill

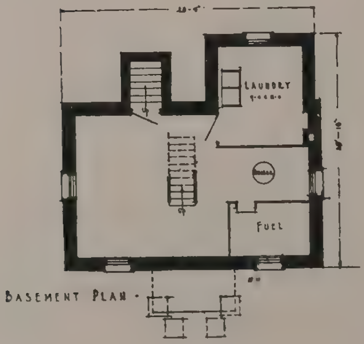


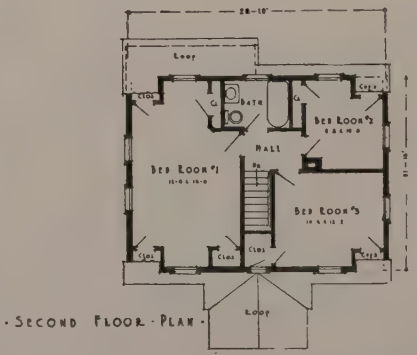


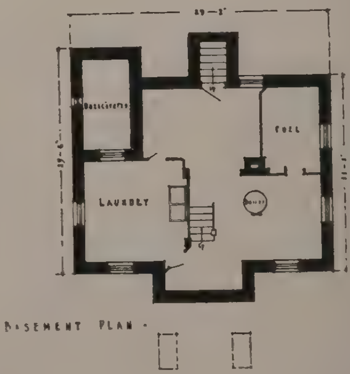




Type D-3 House, and Variations of Floor Plans for This Type







Indian Hill, Worcester, Mass.

Buyers at Indian Hill have every reasonable assurance of the stability of their purchase. They know of the substantial materials that have been built into their houses (brass supply piping and copper flashings are not used by the jerry builder), and they know that no man can plant a factory or a store or a saloon next door to them. In other words, the property is all sold under carefully considered protective restrictions, which are accepted and recognized by the purchaser as equally valuable to themselves as to the company.

In detail, they have been well explained in a pamphlet recently published by the owners, as follows:

Terms of Purchase

The Indian Hill Company requires from the purchaser an initial payment of a certain percentage of the purchase price, whereupon a conveyance of the property is made. For the balance of the purchase price the purchaser gives two notes, one for $1,000 payable in twelve years at 5 per cent, and another for the balance of the purchase price payable on demand, with interest at 5 per cent, both notes being secured by a purchase money mortgage.

The purchaser gives also a supplementary agreement to the effect that he will purchase in a co-operative bank five shares, and will continue payments thereupon until his deposits shall have matured in the sum of $1,000, which in local banks, at the prevailing rate of interest takes place in about eleven years and ten months. This insures the payment of the twelve-year note according to its terms. It gives the purchaser a feeling of independence, inasmuch as he does not make periodical payments on the principal to the company, and enables him to become acquainted with co-operative bank methods.

In consideration of this agreement the company agrees not to make demand upon the demand note as long as the purchaser shall continue to make monthly payments of interest to the company and monthly payments in accordance with his agreement to the co-operative bank. The company further agrees that if he shall die or become incapacitated within twelve years — provided that at the time he shall not be over sixty years of age — it will accept the surrender value of his co-operative bank shares in full payment of the time note. The result of this agreement is that the purchaser may be assured that at the end of twelve years, or upon his prior death, a sufficient proportion of the purchase price will have been paid so that he or his estate will then own the property free of all incumbrances except a first mortgage for not over sixty per cent of the value of the property, so that at his option he may resort to a bank for a mortgage and be entirely independent of the company.

The company gives each purchaser a schedule showing the required monthly payments. The following table is a reproduction of one which was given to a purchaser of one of the 1915 houses, and illustrates very well the method of financing the purchase of an Indian Hill house:

Your total purchase price is	$3,851.50
You have made a first payment of 10 per cent	385.15
You are borrowing on mortgage, the balance	3,466.35
The amount due in 12 years, secured by time note, is	1,000.00
The balance secured by demand note is	2,466.35
Your monthly interest during first 12 years will be	14.45
Your monthly payment to co-operative bank will be	5.00
Your total monthly payments during first 12 years	19.45
Your monthly interest payment after 12 years will be	10.30
Total loan	3,466.35
Five per cent	173.32
1/12	14.45
Demand loan	2,466.35
Five per cent	123.32
1/12	10.30

By following the table above, a prospective purchaser may start with the price of any available house and compute the amount of the monthly payments which he would be required to make.

Homes at Actual Cost

The purchase price represents the actual cost of the house and land without profit to the company. The original purchase price of the entire area was divided by the number of feet in the tract to determine the base price per foot. To this was added a pro rata proportion of the cost of improvements, such as sewers, highways, sidewalks, engineering expense and architect's fees.

In the case illustrated above, the cost of the land was $685 for a lot containing 6,850 square feet. To this figure was added the actual price of the house, without profit. This included the expense of the building, heating, lighting, plumbing, piping, hardware, fixtures, papering, window shades, screens, concrete cellar floor, granolithic walks, rough grading, finish grading, planting and clothes reel.

GIVING THE WORKMAN AN OPPORTUNITY FOR HOME OWNERSHIP

By CLIFFORD S. ANDERSON

Assistant Counsel, The Norton Company, Worcester, Massachusetts

UP to the present, the Norton Company has not been called upon to meet and solve the industrial housing problem as it is generally understood. Many concerns which have been located in the smaller towns, in order to provide homes for their workmen have had to practically create a local village. Other industrial plants situated in large cities have felt it imperative to bring about an improvement of home conditions for employees previously living in slums. We have fortunately been situated on the outskirts of an industrial city to which laborers are constantly attracted. It is a city which up to the present time has no slums. As a matter of fact, our lower-paid employees are able to secure living accommodations that are safe and light and well ventilated, and as clean as the occupants are inclined to maintain them, at a price commensurate with their income, more readily than any group of our workmen. Accordingly, we have not set out to approach the problem from the bottom but rather from the top. Our aim has been to make it easy for our foremen and more progressive workmen to obtain for themselves homes of taste and convenience, likely to make the employee happy and contented with his personal work, to improve his taste, stimulate his ambition, lead him to assume without terror some of the responsibilities which fall upon men of all stations in life, and to furnish for the other employees tangible evidence of the thoroughly satisfactory and worthwhile things of life which may be secured by diligence and industry, and so stimulate in them a desire to make themselves more useful, to improve their conditions of living, and to so win for themselves and for their families a bigger share of the truly good things of life.

Enlightened Self-Interest, Not Philanthropy

The Norton Company has embarked on this work, not solely with the idea of indulging in philanthropy, but from the point of view of enlightened self-interest, considering the return in loyalty and intelligent labor, and the probably increasing values which are likely to result from the development of the Indian Hill community. We have given our workmen nothing but an opportunity. The land cost them all that it cost us. The houses erected thereon cost them all that they cost us. We have simply furnished them the opportunity to buy a home not only on easy payments but at cost, an opportunity which is not elsewhere extended to them. The Indian Hill community is a corporation, the stock of which is held by the Norton Company, and was brought into being merely to handle more easily the work of creating an industrial village. The policy of its board of directors, which is identical with the directorate of the Norton Company, is to administer its affairs without profit and without loss. All of its activities are purely business; its purpose, to insure to our workmen the opportunity of an attractive home at cost, without exacting a penny for the profit of others, and to insure to the stockholders, in other words, the Norton Company, the business-like execution of this mission without a penny of loss.

When the village was originally opened in 1915, there were, of course, many who rushed in to avail themselves of the new opportunity, but there are residents on the hill who have been invited to come there by the company, families whom we felt would be leaders in the community, and contribute to the success of the village life. We have not hesitated to suggest to certain employees that they undertake a considerable financial responsibility in securing a home in this way, for we have found from experience that the appreciation of these opportunities up to a certain point is in direct proportion to the sacrifices that are required in order to enjoy them. Yet I do not think that in any case periodical payments are being made upon a house in excess of 25 per cent of the income of the residents.

In starting out upon our program we were fortunate in having right at the very doors of our works an ideal site — a beautiful hillside overlooking the waters of Indian Lake, with an opportunity for gentle grades and slopes for the roads which have been taken advantage of to the greatest extent by the architect, Mr. Grosvenor Atterbury, whose services we sought because of his similar work in connection with the Russell Sage Foundation and their housing problem. The idea was to establish here homes which should be substantial, resistant to fire, would not require a large cost of maintenance and which would combine taste with efficient relation to the need of the class of workmen who were likely to reside therein.

All Houses Sold, Not Rented

In the very first instance the company decided that the relation of employer and employee was sufficiently intricate so that we did not want to assume also that rather difficult relation of landlord and tenant. Consequently none of our houses are rented; all are sold. We were fortunate in securing the land at a low price and offered it to our workmen at the actual cost per foot, including the improvements, and built the houses for them through our own hired contractor. There are five or six different styles of houses so that that unwholesome uniformity that used to dominate an industrial village is presently lacking.

How the Financial Problem Was Met

The question came at once, how should we finance our scheme? We decided that we would sell direct, giving a full title to the buyer, taking back a mortgage. We require of the purchaser an initial payment of 10 per cent of the cost of the house. He gives us in addition a time note for 12 years and a demand note. These are secured by a mortgage to the company. We require of him also that he take out a certain number of shares in a co-operative bank, and the local banks, at the rate of interest which has been adopted, have brought about the following state of affairs: that a payment of a dollar a month results in a return of $200 in 12 years. Consequently at the end of 12 years he has, without making any direct payment to us, saved a sum sufficient to pay off the time note, and that sum, with the initial payment, brings him to a point where he may then look to a bank in the city and have a first-class bank mortgage and own his house under the same conditions that prevail among those in more fortunate circumstances. In many instances the owners of these houses are occupying them and virtually securing the ownership thereof at monthly payments which do not exceed the amount which they were previously paying as rent for tenements in which they never had any lasting interest.

We built first in 1915 twenty-seven of these houses and thirty more in 1916. The prices in 1915 ranged from $2,850 to $4,000; in 1916, from $3,600 to $5,200.

The cost of these houses was 16 cents per cubic foot in 1915, and 19 cents in 1916. Mr.

Atterbury informs us, however, that the same house we have been constructing was constructed in 1916 in Tennessee for 10 cents per cubic foot.

It is too soon for us to tell what we find registered in increased loyalty and increased work in the factory due to this one project alone. We feel sure that the effect will be to attach the workmen to our company. On the other hand, we have been careful not to chain them to the soil. The possessor of an Indian Hill house may leave our employ and still retain his home. The purchasers of our houses are also free to sell, this provision only being made, that having a bona fide offer in writing from another they shall be prepared to offer the house to us at the same price, so that if we do not approve of the new village occupant we may take the house over and seek new residents for ourselves.

The increasing village life has been interesting. The owners of these houses have formed their own improvement society and have recently made appropriations for the beautification of their village. We feel sure that the work has been started successfully and we look forward to greater influence in the future.

Note: The foregoing is a reproduction of a paper read before the American Society of Mechanical Engineers.

BRISTOL, PENNSYLVANIA

CARROLL H. PRATT, *Architect*

An Excellent Example of an Industrial Village Established for the Housing of Shipyard Workers Employed at the Plant of the Merchant Shipbuilding Corporation, Agent for the United States Shipping Board Emergency Fleet Corporation.

THE Merchant Shipbuilding Corporation was early to recognize the economic fact that proper housing of mechanics is a necessity in the stabilizing of labor and industrial progress. No sooner had work begun on the great shipyard plant at Bristol than the Corporation began to lay plans for a comprehensive housing development to take care of the social needs of its workmen and their families.

A building program was determined on which departs radically from that followed in many industrial developments where unsightly views of dwellings possessing no architectural merit, frequently not well planned, greet the eye, and often develop into slums in which the tenants have no pride in their homes or surroundings.

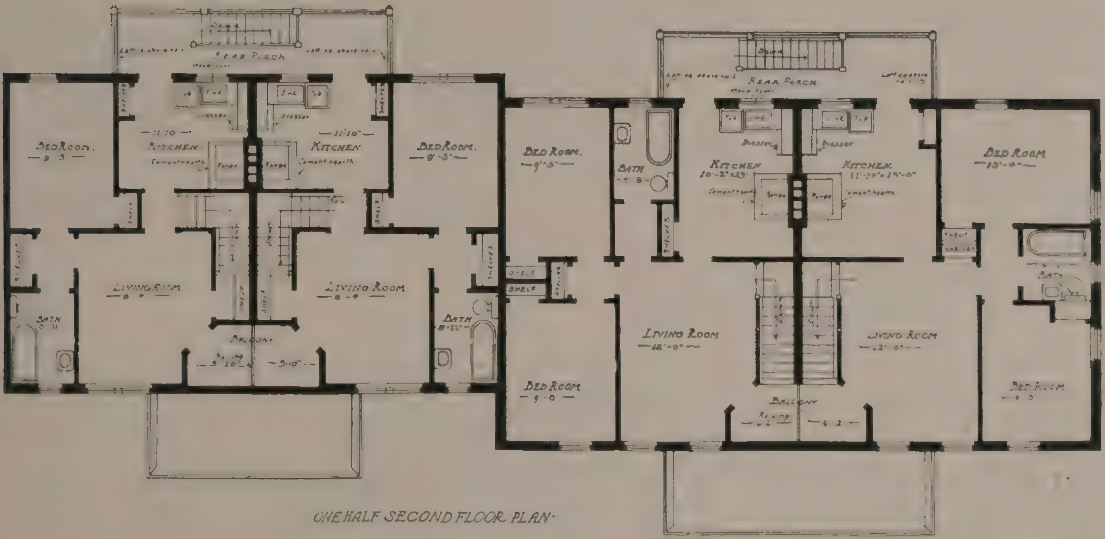
Temporary Barracks Made Permanent

To avoid the waste and unsatisfactory results incident to construction of temporary barracks, frames and covering were erected for buildings which could, after their temporary occupancy by construction forces, be completed into substantial and permanent form for the shipbuilders who would follow.

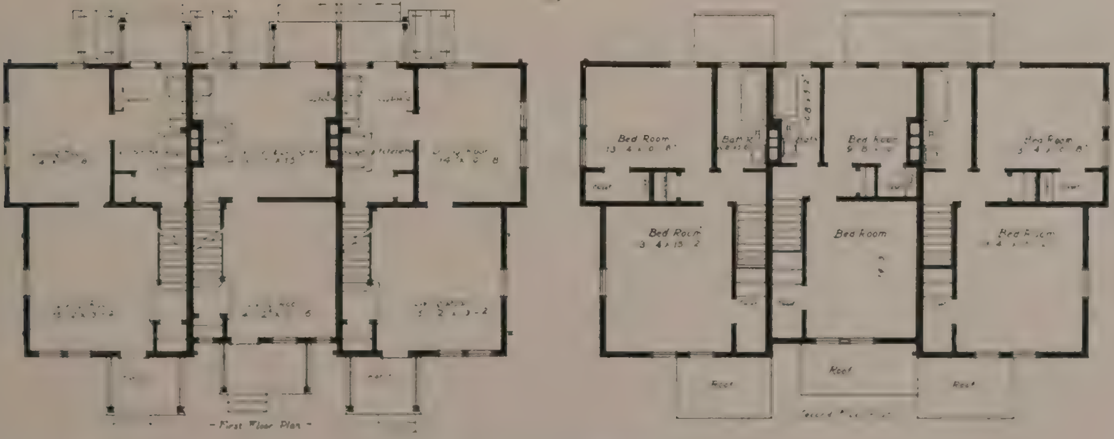
A general plan was then laid out providing for all usual and necessary community facilities, including schools, stores, restaurants, churches, playgrounds, and parks, as well as various types of buildings for housing bachelors and families of all classes of employees, from the common labor type to skilled mechanics, foremen, superintendents and executive forces. This plan has been consistently followed, and provides for an equitable and appropriate distribution of the various types of buildings.

Beginning at the northerly end of the property adjacent to the plant, on the west were placed the buildings to house bachelor laborers

Types "I" and "G" Houses, Bristol, Pa.



Section of Second Floor Plan, Type "I" House



Floor Plans, Type "T" Houses, Bristol, Pa.
Carroll H. Pratt, Architect

and mechanics. A number of these buildings were the first erected, for temporary occupancy, without interior partitions or finish, and temporary but weather proof roofs and side coverings and with permanent foundations. These buildings have since been completed into permanent form with practically no waste or loss, for the permanent plumbing and heating equipment was installed and little change in this was necessary.

The blocks for bachelors' houses were laid out with large buildings of the boarding house or mess hall and dormitory type, housing sixty men each, at each end of the block, with smaller buildings, housing twenty men each on the cross streets between. Lavatory and toilet arrangements are conveniently located in each building and all of these buildings are provided with electric lighting, steam heat from central plant and have interiors finished, painted and appropriately furnished.

Community Mess Halls and Kitchens

In the so-called boarding house, rooms are placed on both sides of corridors well lighted, and on the first floor is placed a large kitchen and a mess hall of sufficient size to provide for the men in adjacent houses as well as tenants of the buildings. Recreation rooms are provided on the second floor.

In the smaller units the two wings of each building have access to a central toilet room provided with tubs, showers, lavatories and closets, and each wing is arranged to group the bed rooms around a central living room in which the tenants may find recreation other than sit in the bed rooms or seek other less desirable environment. Seven blocks of these buildings have been erected, comfortably housing 2,000 men, and while the plans of the two types of buildings are similar, considerable variation in the exterior designs avoids the monotony which is so common in industrial developments.

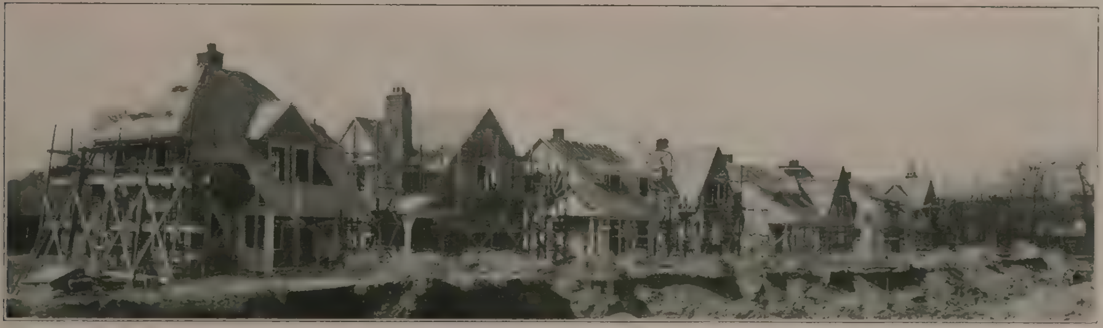
Southerly from these buildings, and between these and the open park and playgrounds, are placed the apartment houses for families. These are of varying types of exterior design, all two stories high, having sloping roofs and exteriors of brick, stucco, clap-boards and shingles.

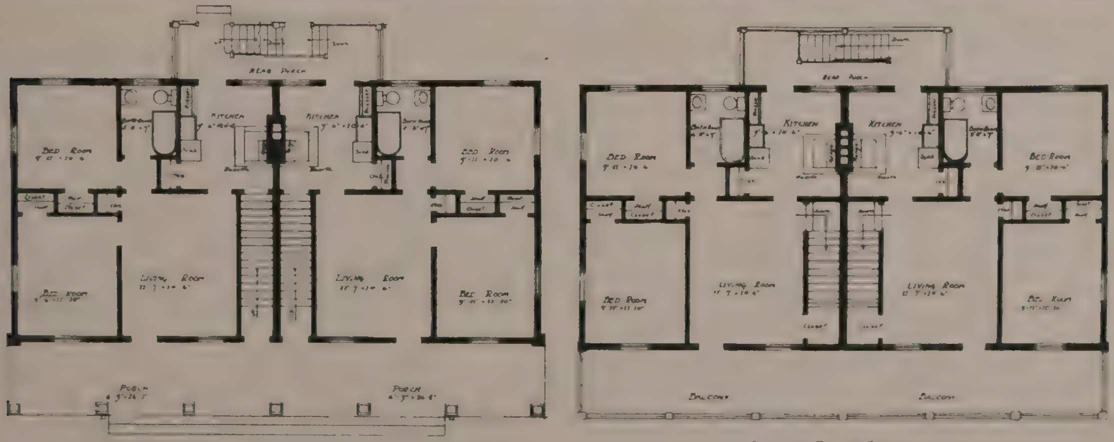
Apartments each have separate entrances, and have three, four and five rooms each. Care has been taken to plan all rooms to be rectangular in shape without irregular offsets or alcoves, well lighted, conveniently arranged, of good size and amply provided with closets. Each family has access to storage room in cellar and all apartments are heated from central heating plant.

On the southerly side of the public space are placed the individual group houses for the occupancy of married skilled laborers and mechanics. These rows of dwellings, in which no more than seven families are placed under one roof, offer an opportunity for considerable variation in exterior design which has not been lost, for all have sloping roofs, and the same variation in building materials mentioned above gives the completed streets an appearance not unlike that of the high-class suburban development with detached units. Here again careful thought and study has evolved plans giving the maximum of convenience and utility in the four-, five- and six-room well lighted houses which comprise these groups. Finally, at the southerly end of the development and surrounding a smaller park are placed the single detached houses of five and six rooms, which have been provided for superintendents, foremen and executives, and which are also of varying plan and exterior design.

Along the main street on the easterly side of the residential section, and between it and the plant, are placed the Administration Building, Commissary, Stores with apartments over them, Police Headquarters building, Fire Headquarters and other community buildings. Between the street and the park and facing both street and park a hotel is to be placed, providing furnished rooms for single and married men.

On the westerly side of the park, and facing it, is the group of school buildings providing rooms for elementary and high school grades

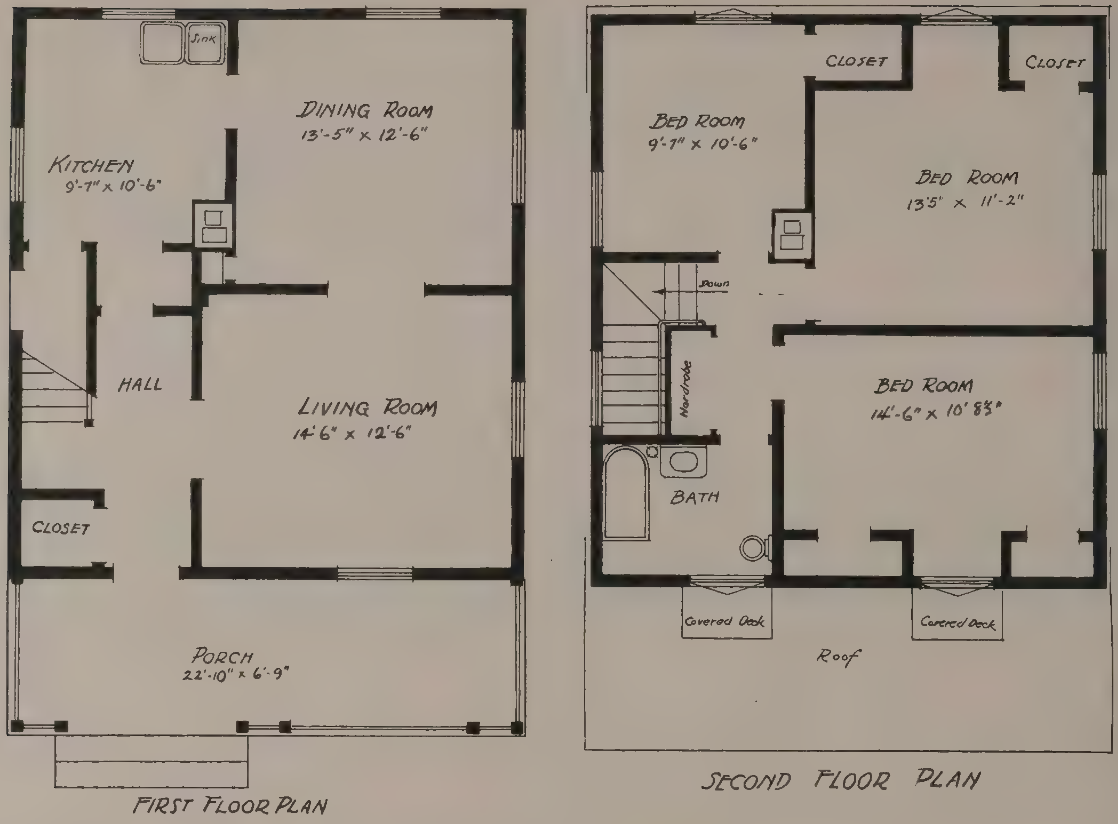




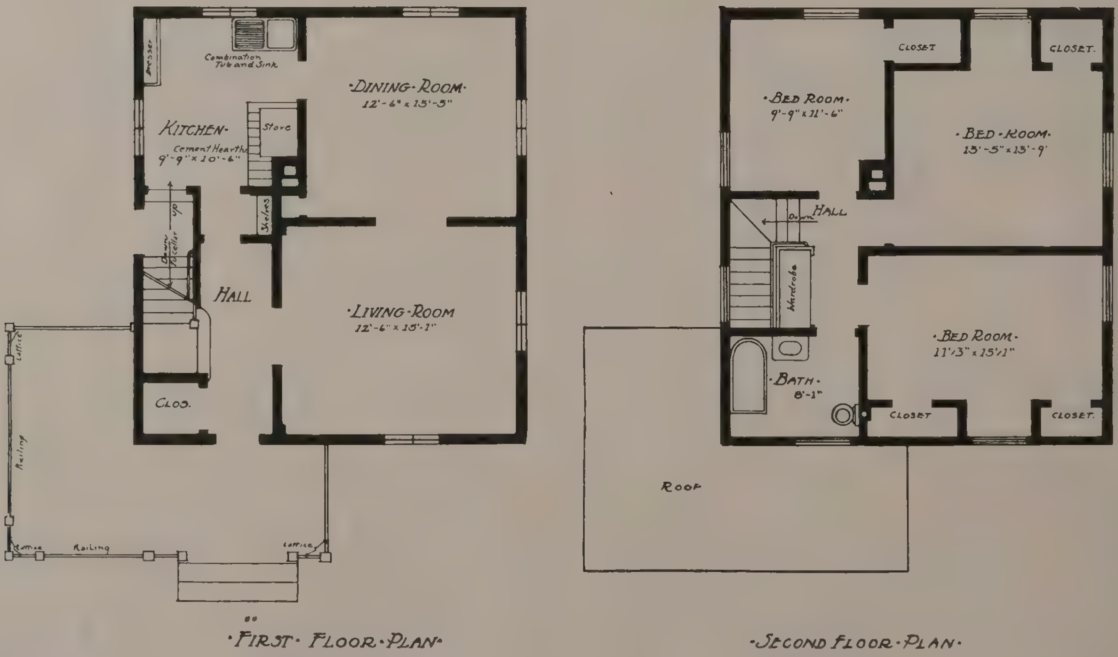
-FIRST FLOOR PLAN-

-SECOND FLOOR PLAN-

Typical House Groups, Bristol, Pa., with Floor Plans of Type "J" 4-Family Apartment



FIRST FLOOR PLAN SECOND FLOOR PLAN



·FIRST· FLOOR·PLAN· ·SECOND FLOOR·PLAN·

Floor Plans of Type F-H-2 Houses (above) and F-H-3 Houses (below)
Bristol, Pa.

with appropriate assembly halls, class rooms, etc., and in the rear of these is located the athletic field, offering opportunity for various athletic activities such as baseball, football, tennis and other games.

The apartments and houses will be rented at from $13 to $30 per month.

Rent and sales terms have been worked out so as to yield a fair commercial return on the investment.

This town is a splendid object lesson to large industrial communities as to what can and should be done to make their employees comfortable.

Even greater than the direct financial gain to the company will be the return in the raising of the standard of self-respect to the workmen which comes from living in pleasant homes, and the better supply of labor that will be attracted and stabilized.

THE GOVERNMENT'S ADVICE ON SELECTING INDUSTRIAL HOUSING SITES

RECOMMENDATIONS COVERING WATER SUPPLY, DRAINAGE, SEWERAGE DISPOSAL AND ROAD IMPROVEMENTS

Compiled under the direction of

JOHN W. ALVORD

Engineering Division, Bureau of Housing and Transportation, U. S. Department of Labor

General Conditions to be Observed

Drainage.— It is important that the site be well drained to ample depths required for cellars. High, slightly rolling or gently sloping land at least 15 to 20 feet above an available outlet in the immediate vicinity is highly desirable and ideal.

Low Lands Available.— Low marshy land with no marked drainage lines is not to be entirely avoided, because it can probably be developed, but at considerable expense for grading or pumping the sewage and drainage, which expense must be added to the cost of the land and should be kept in mind for purposes of comparison.

Marked Natural Drainage.— Gently sloping land, with well marked natural drainage lines traversing it, is desirable, as the cost for natural drainage is lessened and desirable open spaces are increased.

Broken Land.— Very broken land, with accordingly rugged topography, all requiring a great deal of heavy grading to render it habitable, is to be avoided for present purposes.

Desirable Sandy Land.— Sandy soils, with low ground-water level and good outlet, are desirable, although expensive to develop fully. The disadvantage of expensive black soil importation offsets in part the naturally good drainage, dry cellars, and cheap storm water removal.

Undesirable Sandy Land.— Sandy soils with high ground-water and poor outlet facilities are expensive for the construction of underground work.

Clay Soils.— Close clay soils are not entirely desirable, as surface drainage must be largely increased, especially where steep slopes prevail. Stiff clay makes for expensive pavements, imperatively needed, and often cellar drainage must be especially provided.

Gravel and Sands.— Sandy gravel, even containing some clay, makes an excellent site, particularly when porous and combined with low ground-water level. Such a site needs a minimum of street pavement or, at best, inexpensive pavement, and the drainage system will be much cheapened. Excavation is also less costly than in some other soils.

Sites Best for Streets.— The topography best suited for streets will furnish grades not less than 0.3 or 0.4 per cent and not greater than 4 per cent.

Corporate Limits.— It is important to note whether the proposed housing site is inside corporate limits of the municipality and, if it is not, to ascertain possibility and terms for connections with existing municipal public utilities.

Important Sewerage Details

Connection to Existing Systems.— The available outlet for the sewers must be fully investigated. If this is through an existing sewer in a neighboring sewer system, ascertain if it is large enough, where it empties, and what, if anything, it imperils. Report type of sewer system, whether sanitary, combined or storm water.

Note approximate drainage areas, direction of flow and relative surface elevations, with particular reference to the necessity for and approximate size of storm sewers and open ditches.

Long Outlet.— If long outlet sewers are necessary for connection with neighboring sewers, ascertain their cost and how this mav compare with other possible outlets.

Legal Status.— Investigate if local sewers in adjacent systems can be legally used without payment. If proposed housing quarters are outside corporate limits, can connection be made with sewers in the corporation?

Special Assessment Laws.— Always check general statements about the use of adjacent sewers by consultation with the city authorities and particularly see the special assessment laws and ordinances by which such sewer districts were formed and such sewers paid for.

Constructive Questions.— Ascertain soil conditions as to cost of construction on the proposed site. Will the banks stand up alone? To what depth? Quicksand? Rock? Groundwater?

Local Material.— Are there local supplies of building material? Lumber? Cement? Sand? Gravel? Broken stone? Prices?

Local Contractors.— Are there local contractors and builders? What equipment is available, such as trench machines, concrete mixers, grading outfits, steam shovels, teams, motor trucks? Find recent contract prices for sewers, paving, curbs and sidewalks.

Transportation.— What are the railroad switch and transportation facilities for delivery of material?

Local Labor.— Investigate local labor situation with reference to available carpenters and laborers.

Selection of Sewer Outfalls

Outfalls to be First Considered.— As the sewerage and drainage are in many ways affected by the ultimate method of sewage disposal, it is essential that investigators should obtain the data for the proper solution and approval of that problem.

State Control.— In most states the state board of health has control of the sanitary standards to be observed, and in some cases they issue rules, directions and in other cases have well defined policies which it is important to know and follow.

Detailed Approval by State Authorities.— Where state board of health or other authority controls stream pollution, it is usual to find that the law provides that it has final approval of all plans and specifications. This should be kept in mind.

Extension of Existing Facilities.— In localities where sewerage facilities exist, extension of such facilities is presupposed, unless the state authority or good practice requires their revision or rejection.

Local Practice.— In developments which are contiguous to municipalities or are parts of municipalities, the practice and method of such municipality should be followed if good, and followed and supplemented by good practice where desirable.

Isolated Developments.— Where developments are not adjacent to settled territory of any description, standards must be outlined, future expansion taken into account and especially complete information obtained.

Stream Pollution.— In general, streams should not receive raw sewage from isolated developments unless the extreme low-water flow of the stream exceeds about 5 cubic feet per second for each 1,000 of the probable future population.

Provision for Future Tankage.— In every case, where possible, outlet sewers should be at such elevation that sewage treatment by tankage can be readily introduced in the future, if required.

Outlets.— In the cases of all considerable streams into which the contents of sewers are discharged, good practice would suggest that submerged outlets conveying the normal flow should extend out into water of such depth that the sewage will be quickly diffused and not easily observable. Overflow at the shore line may provide for abnormal flow.

Tidal Outlets.— In cases where outlet sewers empty into tidal estuaries, special studies are necessary to be assured that freedom from offensive conditions will be obtained. In some cases, where elevation is lacking, it may be necessary to store the sewage temporarily during high tide, and in other cases it may be desirable for other reasons to release the sewage from storage reservoirs on the falling tide only.

Partial Treatment.— In cases where the low-water flow of streams available for sewerage is less than about 5 cubic feet per second for each 1,000 of ultimate future population served, treatment works should be planned for, and if the population in the near future requires, such works should be introduced more or less completely, as circumstances appear to render necessary.

Complete Treatment.— In cases where the sewage must be emptied into a stream quite insufficient in flow to deal properly with it, treatment works of a reasonably complete character must be introduced.

Complete Plant for Extreme Cases.— No sewage or polluted storm water should be discharged into a stream used as a source of domestic water supply at any point where it may possibly contaminate such water supply, except in the most extreme cases. When it is absolutely unavoidable to divert the sewage from a stream used as a source of water supply, treatment plants of the most complete and reliable character should be introduced. A site involving the above conditions is undesirable, and should not be selected if it is possible to avoid it.

Provision for Future Treatment.— Where it is likely that while the present population may safely empty sewage into streams, the future population can probably not do so, space and elevations should be left so as to provide for the possible future installation that may be necessary.

Treatment Sites Removed from Population Areas.— Sewer outfalls liable to require treatment plants should not be located in or near thickly populated or residential property, if it is possible to avoid it.

Long Outfalls Avoided.— Long outfall sewers are to be avoided if possible, where the liability to introduce treatment works is only a future possibility. Short outfalls to the nearest outlet may be selected, but at such elevation that intercepting sewers to more distant outfalls can be introduced when found necessary.

Water Supply Details

Extension of Existing Facilities.— Available water supplies already developed should be examined in detail, to ascertain that they will be satisfactory from the standpoint of (a) quality, (b) quantity, and (c) pressure.

Water-Works Information.— Water-works information should include: (a) type and capacity of pumps; (b) average daily supply; (c) population served; (d) pressure near point of extension; (e) relative elevation of proposed site; (f) size of main supply pipes to site; (g) reservoir and standpipe elevations or storage.

Cost of Connecting Mains.— Where connecting mains outside of the site are not sufficient in size or are deficient in pressure, the cost of supplying these deficiencies should be approximately ascertained, if possible, and also inquiry should make known whether that cost will be assumed by the municipality or water company.

Water Rates.— Ascertain whether water is sold in adjacent territory by meter or flat rates or in part both; what these rates are and what policy the water company or department will have in the matter of the housing development, particularly if the proposed housing quarters are outside of the corporate limits.

Cost.— Ascertain whether the extension of water mains within the housing development site will be a direct charge or will be amortized in the rates.

Pressure.— Find out whether the pressure is deficient, whether new and higher pressure can be generally installed, whether a high service district is necessary, or whether booster pumps or storage will be needed.

Fire Engines.— Ascertain whether fire engines are used or extra fire pressure, developed at the pumping station, is used for fire service.

Poor Supply Quality.— Water supplies from surface supply unfiltered are to be looked upon with suspicion, and, generally, arrangements should be urged, if possible, for their filtration or, at least, sterilization.

Contamination by New Housing.— Water supplies in adjacent developments should not be imperiled by the installation of the new housing developments in such manner that the sewage will reach their source.

Special Report.— If entirely new supplies must be developed, an experienced water-works engineer should report especially on the possible source and the cost of construction and operation, and should show the resulting rates as well.

Streets and Pavements

Situation.— Note location of the proposed housing site with reference to street connections of the municipality. Is the site on a main thoroughfare? Will extensive street work be required to connect the housing site with the business and factory sections?

Soil and Drainage.— As a well-drained site or one with gravel soil may materially reduce the necessity for expensive improved pavements, these features should be specially observed.

Grades.— The best topography for street grades will run not less than 0.3 per cent or 0.4 per cent and not greater than 4 per cent. Note the extent of grading required for streets and houses.

Local Practice.— Observe the local practice as to types of pavement, street and pavement widths, curb and gutters and sidewalks, particularly where there are recently built industrial housing quarters or new real estate developments. Note whether alleys are used.

Local Materials and Prices.— For approximate or comparative estimates, note the availability of local paving materials and prices, also recent contract prices for pavements, curb and walks.

Electric Light and Gas

A good description of the local electric light plant and gas company should be secured. Have they capacity? How connected up to site? Cost? By whom paid? Report on local methods of street lighting.

Investigate rates. Is there dissatisfaction in the community? Is it reasonable? Or unreasonable? Hear both sides to any controversy. Compare rates with other similar situation. See if there is any reason for abnormal rates. Are rates governed by state or other utility commission?

Is service good? Quality of gas? How determined? What ordinance requirement? Electric light: Are there breakdowns and stoppages? Why?

Will companies finance complete installation and authorize through-rates or expect cash cost advance and rates accordingly?

What contractual relations otherwise may be reasonably expected?

HOUSING RAILROAD EMPLOYEES

A COLONY IN THE BLUE RIDGE MOUNTAINS AT ERWIN, TENN.

By LAWRENCE VEILLER

Secretary of the National Housing Association

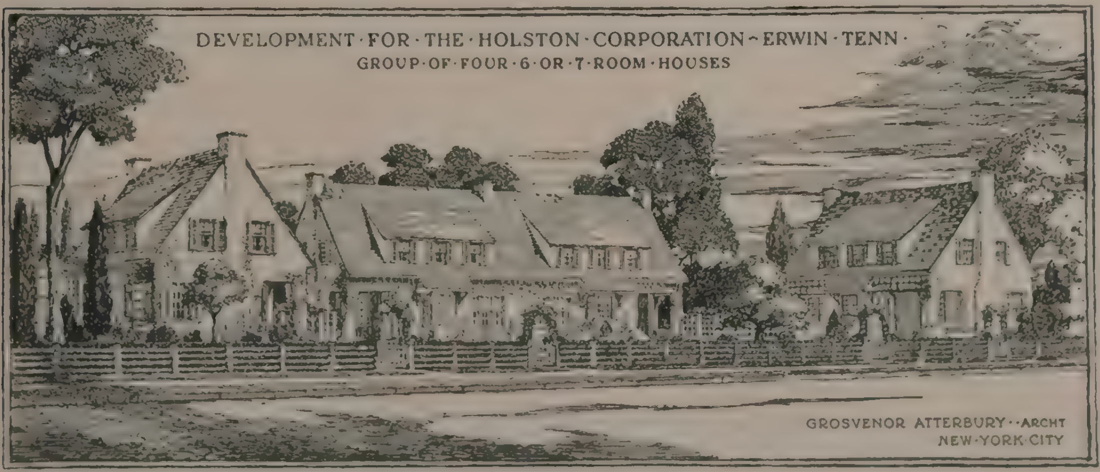
OUR usual association with the housing of railroad employees engaged in construction and repair work is the typical labor camp in which the construction gangs are housed, consisting as a rule of old freight cars, with the wheels taken off, set upon the ground and used as bunk houses.

We do not commonly associate with the housing of railroad employees a Garden Village or model town.

It has remained for a Southern railroad, the Carolina, Clinchfield & Ohio Railroad, to set an interesting example in this respect. Down in the Blue Ridge Mountains at Erwin, Tenn., this railway winds leisurely through attractive hill country rich in minerals. Here, sheltered in a very beautiful table-land enclosed by high hills on three sides, is a little settlement in which the railroad has established important machine shops. Up to two years ago this settlement had reached a population of about 3,000, a considerable growth in the ten years since the railroad came through. Two years ago it was like a thousand other country villages, of hit or miss construction, with architecture of a nondescript character and with nothing to attract one's attention to it or differentiate it from hundreds like it.

A Little Community That Had Vision

In the summer of 1916, some of the men financially interested in this railroad, wishing to develop the town along fundamentally sound lines and to provide for the increased growth which they foresaw, called into consultation Mr. Grosvenor Atterbury, the New York architect, and invited him to visit Erwin and make recommendations to them as to the type of development that could be given to the town. The result of this visit of Mr. Atterbury is a new Garden Village now springing into existence. It required a good deal of vision for a little community like this, tucked away in the mountains of Tennessee, without even a "cattle law" to keep the cows off the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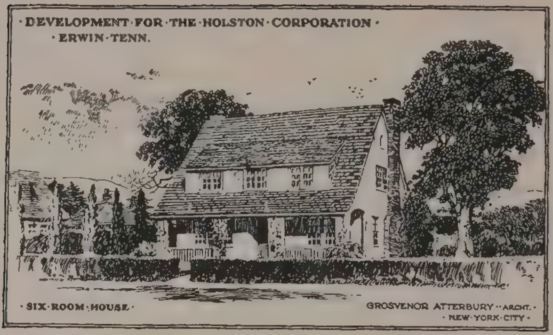
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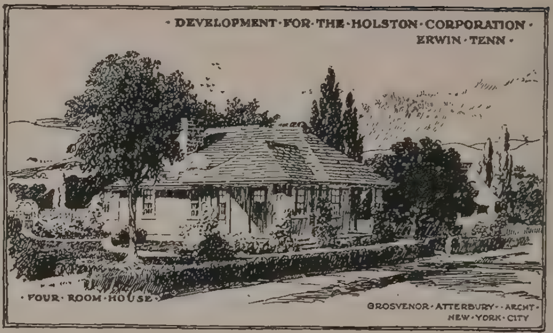
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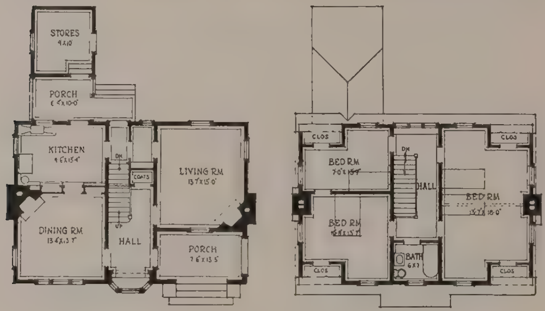
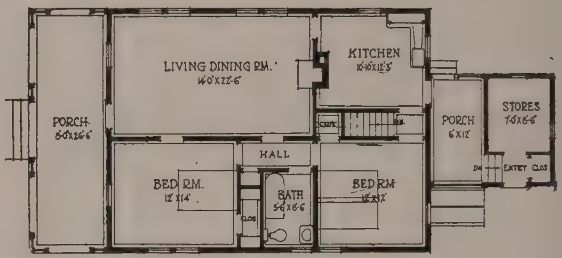


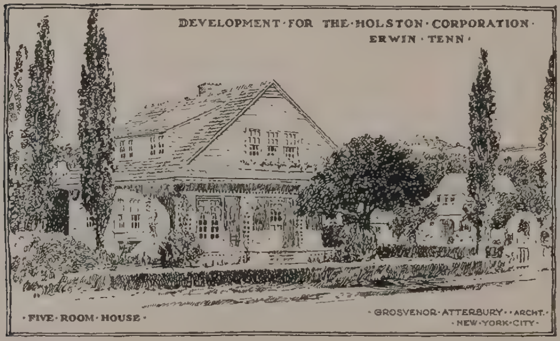
FIRST FLOOR PLAN

SECOND · FLOOR · PLAN

Six-room House



Four-room House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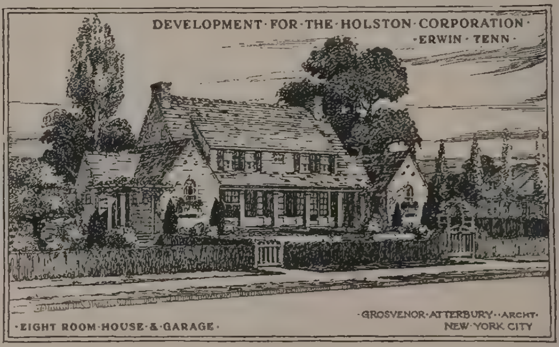
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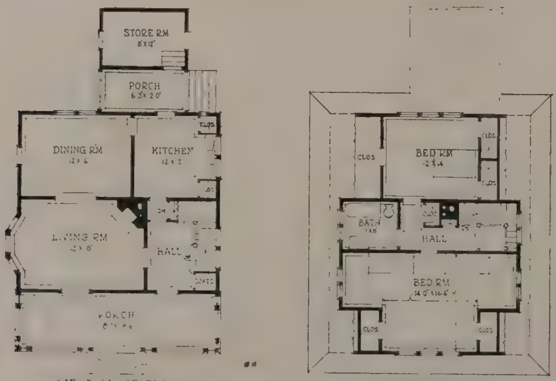
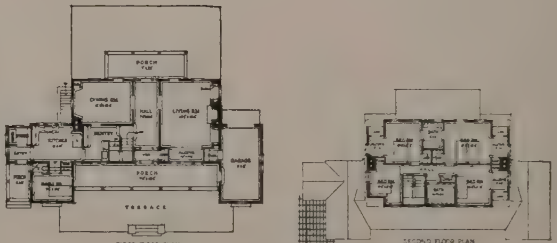


FIRST FLOOR PLAN

· SECOND · FLOOR · PLAN

Five-room House



FIRST FLOOR PLAN

SECOND FLOOR PLAN

Eight-room House and Garage

House Types at Erwin, Tenn.

public streets, to see the advantages and possibilities in well-ordered development along modern town planning lines, but these gentlemen had it and this is what has come to pass. Already an area which will eventually take care of 30,000 or 40,000 people has been laid out.

The problem which confronted Mr. Atterbury presented many interesting questions. In the first place he did not have completely new territory to work with. The fundamental lines of the community had already been established and much of the property was unavailable for the right kind of development, being adversely held by other owners. Notwithstanding this, as will be seen by reference to the general plan, Mr. Atterbury has with much ingenuity and skill worked out an extremely interesting treatment, substituting for the commonplace and unimaginative gridiron plan, with which the community had started, an attractive, modern and scientific layout along modern town planning lines, with curving streets and irregular shaped lots, combining variety of treatment and harmony of design throughout.

As a result of considerable practical experience, the curved streets have been used principally for long, sweeping boulevards and driveways and such have been avoided in the short residential streets and lanes.

The kind of variety and interest that is obtained by curving streets is not essential in the short, narrow streets where the vista is closed within a block or so.

Curved Thoroughfares Without Building Complications

The tendency in many of the new developments is to over-exaggerate and misplace the curvilinear element, forgetting that where the radius is short, as is necessarily the case in short streets, the lotting problem, and consequently the building problem, is enormously complicated and considerably increased in cost by irregular and curved plots. On the other hand where, as in this case, the curves are confined to the larger thoroughfares which have greater sweeps, with correspondingly greater curves, this practical objection in the lotting and building is largely avoided.

These practical considerations have influenced the layout of Erwin, as will be seen from the accompanying plans. Of course, the topography of the site is also contributive in this respect.

The system of main boulevards was laid out to satisfy the demands of future travel from the three valleys opening out from the townsite. The reservation and use of a stream as a parkway along the greater part of the boulevard, which makes a circuit of the town, will preserve a very beautiful natural feature and supply a large park area for the future town.

At the beginning it was the plan of the company to sell the property in undeveloped lots as rapidly as possible. As a result of Mr. Atterbury's work, the owners reversed their original policy after the new development was started and said that it would not do to spoil the proposition by selling unimproved lots — at least until such time as the entire development had been given a start and an example set for its future extension.

Determined On Controlled Development

It is an interesting commentary upon the wisdom of controlled development upon a carefully thought-out plan that, from at first viewing the idea of any restrictions at all with much hesitancy, the promoters of the enterprise should have become converted, as the work progressed, to the belief that proper restrictions would greatly enhance the value of the property. They finally changed their whole point of view and decided that they would not attempt to market unbuilt-on lots and so lose control of the architectural element; that they would build no houses for sale, but, instead, hold and manage them on a rental basis.

Obviously they do not expect to build all the houses for a town of 40,000 or 50,000 people, which Erwin is likely to become before many years, but they will have given direction to the character of the future city and, as it progresses, the same wisdom will continue to guard its best interests by wise property restrictions.

In this very attractive little settlement, with the railroad tracks and shops lying in the foreground, there have been built up to the present time from Mr. Atterbury's designs some 50 cottages of frame construction: some of them stucco, others shingle, a few shingle and stucco. The houses are mostly two-story cottages with sloping roofs. There are one or two bungalows. The majority of the houses are detached, though some are group houses of an interesting character of four houses in a group.

Effectiveness of Group Plan Illustrated

The group of houses known as "Holston Place," illustrates most effectively the great possibilities, hitherto undeveloped in this country, of the group plan and the charming results that are to be obtained in arranging houses around small neighborhood gardens or parks, thus getting away from the stereotyped arrangement of houses in more or less straight rows, set back a uniform distance from the street and presenting an extremely monotonous appearance.

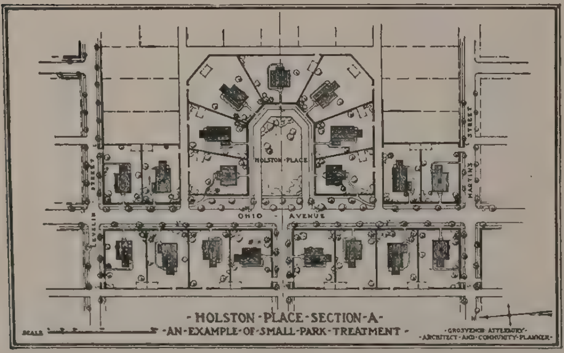
With a frontage of approximately 350 feet the architect has grouped on this plot seven houses around a very attractive small green square. How much more delightful this treatment is than the usual one will be seen if one merely imagines what these same houses would look like on the same plot of ground, placed one after another and side by side on lots 50 feet wide.

The houses are of four, five, six and seven rooms and are extremely attractive in appearance.

An interesting feature of these houses, which is applicable to other sections of the South, is that they are adapted to the local custom of building without cellars. In such cases it is necessary to provide an additional room on the ground floor in the shape of a large storeroom immediately adjoining the back porch. The rooms are all of generous size and every house is provided with an open fireplace with a chimney and hearth intended to burn wood logs, which are plentiful and comparatively cheap in that part of the country. All houses are provided with bathrooms and with all modern conveniences.

Fruit Trees In The Planting Plan

There are a number of interesting features to this development, which are quite characteristic of Mr. Atterbury's work and which are not to be found in the usual development. One of these is the delightfully quaint variation in the style of designs for decorations of the outside shutter panels. Another is the very interesting street lamp posts of wood, which Mr. Atterbury has felt it worth while to design in order to preserve a harmonious development. The planting plan has many interesting features, especially the utilization of fruit trees as part of the landscape treatment around each house. This is not only a very decorative and artistic treatment, but a very practical one as well — one not sufficiently employed by other developers. Fruit trees cost comparatively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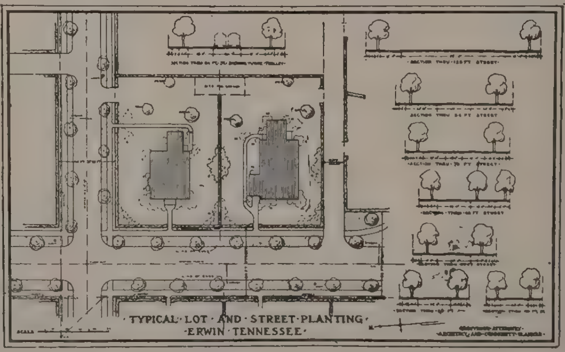
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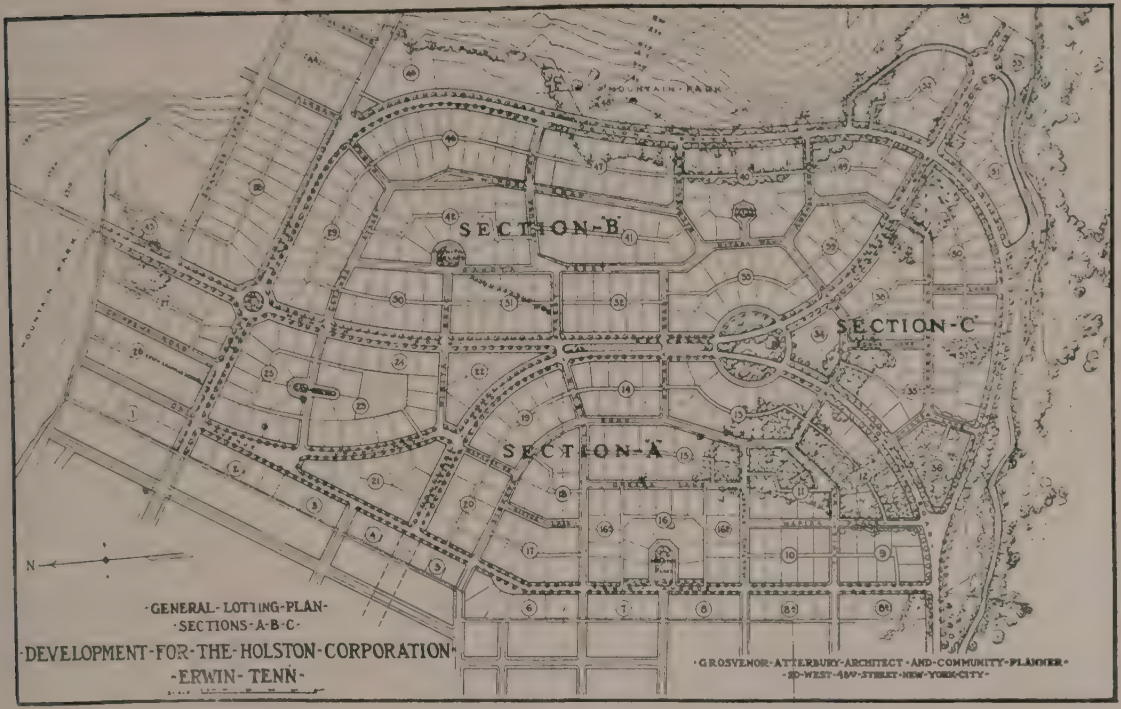
MOUNTAIN PARK
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-ERWIN-TENN-
-GROSVENOR-ATTERBURY-ARCHITECT-AND-COMMUNITY-PLANNER-
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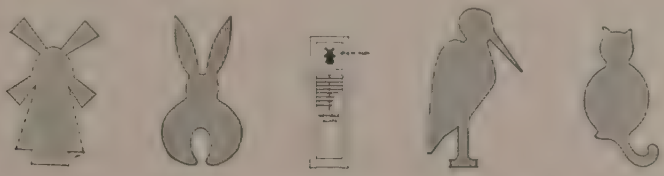
little to plant; are attractive at all seasons of the year, and are a source of enjoyment and ultimately of revenue to the occupants of the houses. They are greatly appreciated by workingmen and should be a feature of every workingman's colony.

Figures as to costs of workingmen's dwellings, as we all know, mean very little unless we have at the same time a statement as to the methods by which they have been ascertained and the conditions under which contracts were let and materials furnished. They vary infinitely in different parts of the country and are, of course, different today from what they were yesterday. It is interesting, however, to learn that a year ago it cost only 10 cents a cubic foot to build these very attractive and artistic cottages. Of course, this could not be repeated in the North and in these times.

This development at Erwin is especially significant as showing the possibilities of well-ordered, harmonious and attractive designing in the development of what is ordinarily so sordid a thing as a railroad shop settlement, and illustrates anew the great advantage of employing for the development of even the humble workingman's dwelling the best expert advice and direction.



Window Shutter Ornaments, Erwin, Tenn.

BUNK HOUSES, BOARDING HOUSES AND LABOR CAMPS

By A. E. OWEN

Chairman, Camp Committee, Pennsylvania Railroad

IN a corporation such as the Pennsylvania Railroad Company, there is at the present time a large variety of bunk houses, such as converted freight cars, abandoned houses, etc., but this can be easily explained. When it was found that our labor was suddenly wiped out, the most essential thing to do was its replacement. Following out various plans, it brought to our company a large importation of alien labor, men who in the main had no homes. The question then arose, How shall we house these men? The matter being entirely new, it was quite natural that every available building and freight car was the first idea; as, at that time, it was thought to be only temporary. We have since changed our minds on this point. The result, however, was a variety of bunk houses, some of which meet the requirements very well and others which do not. After realizing that the proposition which now confronted our railroad company was approximately permanent, a careful study was made of what would be the best kind of bunk house to use, keeping in mind, first, comfortable quarters for the men; second, efficiency and economic construction; and third, general utility.

A Standard Type Adopted

Finally a plan was submitted, and after making many actual service trials, it was approved and made standard.

These buildings are of the portable type, being constructed of the ordinary tongued and grooved pine and built in ten-foot sections. Each building when complete is twenty feet wide, with sloping roof, and approximately fifteen to sixteen feet high from the floor to the ridge pole. The floors are built about eighteen inches from the ground on suitable piers. The entire exterior of the buildings is covered with a pebble dash roofing paper. By this method it is quite a simple matter to increase or decrease the size of a building. It can be stored quite conveniently, or may be moved from one location to any other location without serious hardship, a point which cannot be lost sight of in the general economy and adaptability for emergency use.

In order to conform to the fire regulations, these buildings are lighted by electricity, and each building is equipped with the proper number of fire extinguishers; screens for windows and doors are also provided. It might be well to add that we pride ourselves on having waged a successful war on flies and vermin in general. Our camp inspectors are constantly looking after this feature, as well as seeing that dirt, grease, and in fact refuse of any kind, is not allowed to accumulate, instructions being issued to burn or bury all such litter.

It is our intention to use every effort to house clean labor and not tolerate flies, vermin or dirt of any kind. We also follow this plan in so far as other sanitary measures are concerned. It is not new to me to receive reports that baths, followed by kerosene and disinfectants, had been used.

Standard Double-Decked Bunks Used

A standard double-deck bunk is used in these dormitories, and each bunk is supplied with two blankets, pillows, pillow cases and sheet. The blankets, mattresses and pillows are frequently aired and sprayed with an approved insecticide, pillow cases and sheets are sent to the laundry, and floors are scrubbed at least twice a week with disinfectant solution, and mopped or swept at least once a day. The cuspidors are cleaned daily, and a disinfectant solution left in the cuspidors. Wherever it is possible, a separate locker is provided for each man, which contains soap and individual towel.

In each of these buildings stationary wash stands are provided, hot and cold water furnished, and where camps are sufficiently large and drainage available, shower baths are provided. Indeed, it is the aim of our company to provide these facilities at the smallest camp.

The Problem of Food

Probably the most important point in the maintenance of labor and labor camps is food. It is an old saying that the way to a man's heart is through his stomach. This is perfectly true as far as labor camps are concerned, and, even offering the best that can be had, our turnover is extremely heavy, and in a measure, it is hard for us to realize why we should be compelled to bear this burden of expense. We have tried to give our labor everything that is good and substantial, placing the men in a position to receive credit, allowing them the privilege of purchasing at cost clothing, shoes, tobacco, etc., not saying anything of the bunk room and meals, which are practically donated. It is true that we receive a small amount in return, but so far we have failed to realize a profitable showing, undoubtedly due at this time to the high prices of food stuffs and equipment in general.

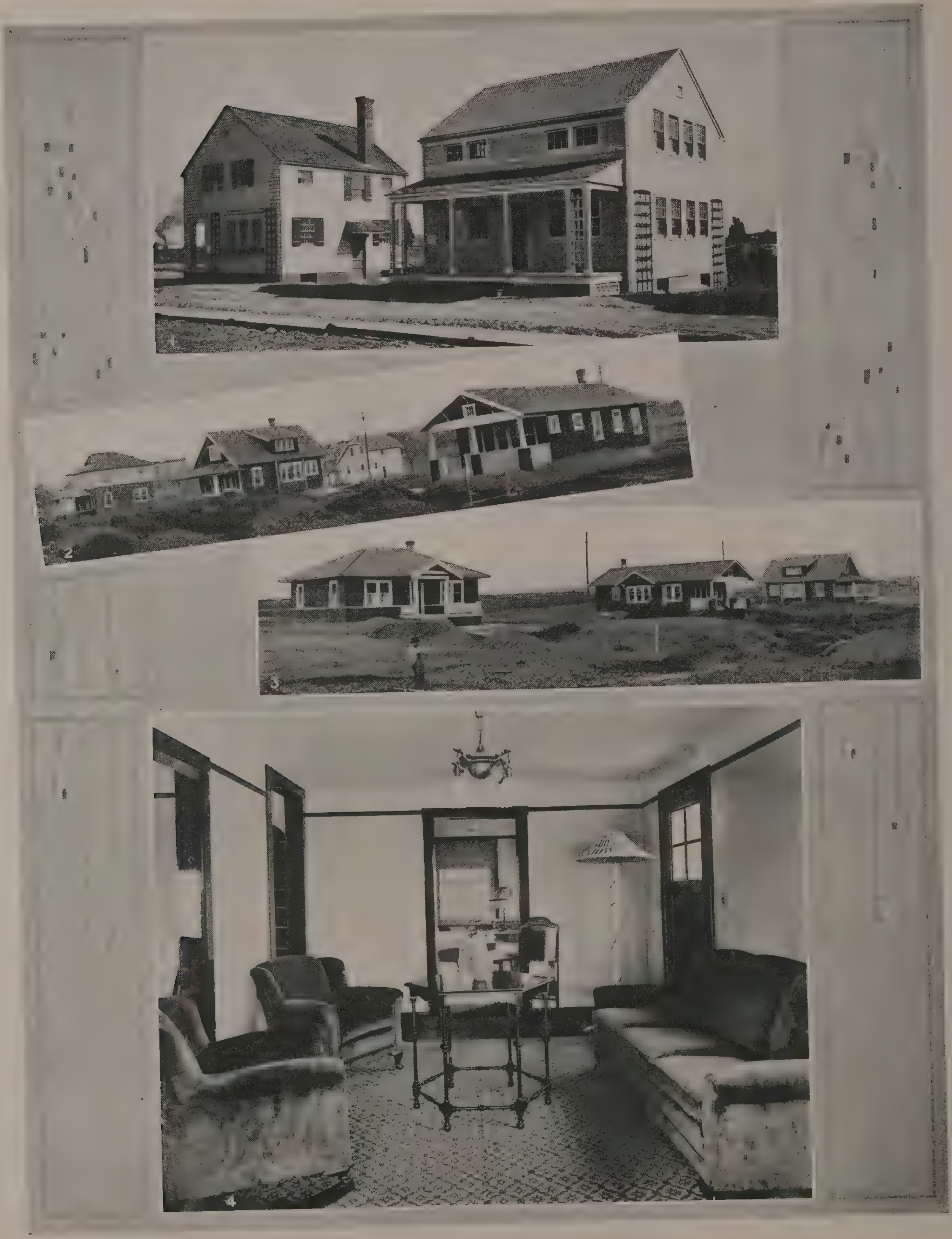
In the larger camps a separate building is used for a commissary or store. This plan is gradually being carried out in the smaller camps, it being understood that the commissary storerooms are fashioned after the same general construction as is used in the bunk house. The kitchens are equipped practically on the same plan as hotels. Bills of fare have been introduced, with menus listing an excellent variety of good, wholesome food. Good cooks are secured to prepare this food properly, which is served by waiters, and a second helping is permitted.

Recreation Rooms Provided

We are now gradually enlarging our camps to include recreation rooms, something to give the men an opportunity to amuse themselves — a central point, in other words, where they may gather and pass their time when not out on the tracks. There are various forms of amusements provided, but as yet standard plans have not been drawn up, owing to the various nationalities represented, and the different forms of amusements required. However, it is a subject which is being given serious consideration.

Our medical department has also been enlarged to look after the general sanitation of the camps as well as the health of the men.

Much could be done to improve labor camps if industrial business and railroads in general would co-operate, each realizing that certain responsibilities are to be assumed. Instead of resorting to spirited competition, a common ground and agreement should be reached. That would lessen the turnover, which, it must be admitted, is very expensive, and destroys any degree of stability in either industrial business or railroad operation.



House Types and a Home Interior at Flint, Michigan

FLINT, MICHIGAN

CITIZENS HERE ORGANIZED A BUILDING COMPANY IN AN EFFORT TO MEET THE HOUSING NEEDS OF A GROWING TOWN

A NOTABLE building development along wholesale lines is that of the Civic Building Company at Flint, Mich. This is of particular interest because of the fact that it is not fundamentally a commercial scheme, the agitation for the undertaking having been started by the Flint Board of Commerce in order to meet the rapidly growing needs of a thriving commercial and industrial city.

In the year previous to the establishment of the Civic Building Company about 1,500 houses had been built in Flint along the customary speculative lines; but in spite of this fact the business activity of the town was being hindered, because of lack of suitable homes for the workmen who should have been employed. The Board of Commerce therefore took up this matter with a view to working it out on broad lines, and the Civic Building Company has been the result. This concern is sponsored by a number of the reliable and public spirited men of Flint, and its main purpose is not to show big returns on the investment, which it will not do, but to provide a number of well located, well built, comfortable and attractive homes which people of moderate incomes can buy on a monthly payment basis.

An Entire Town Complete

For the purposes of this development a 400-acre tract of land was secured just outside the city limits of Flint. The problem presented was, therefore, not merely a building development, but practically the construction of an entire town, including grading, the laying out of streets, pavements, sidewalks, sewers, and other public utilities, parks and playgrounds, and locations for churches, stores and public buildings.

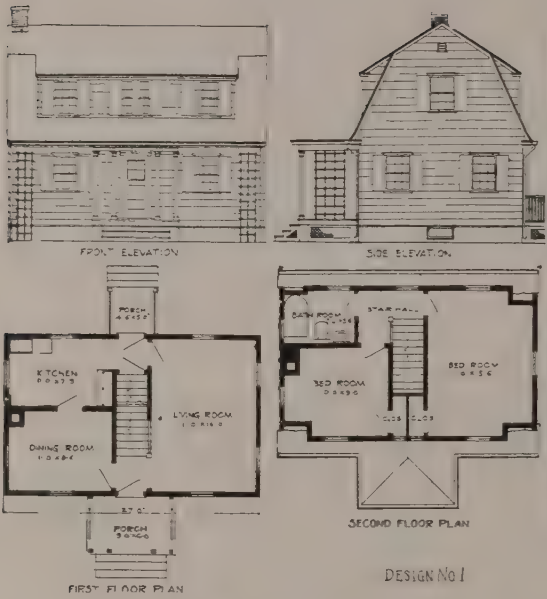
The average lot size is 50 x 100 feet and the houses as built, including the lot, range in price from $2,750 to $4,000. The ordinary basis of sale of these homes is 10 per cent down and 1 per cent a month — monthly payments being so graded as to include both principal and interest.

About 130 houses have been completed. They vary in size from 17 x 27 feet to 24 x 27 feet, though most of them are practically square. As to number of rooms, they vary from 5 rooms with bath to 8 rooms with bath. The plans are all made by the same architectural firm, Messrs. Davis, McGrath and Keisling, of New York.

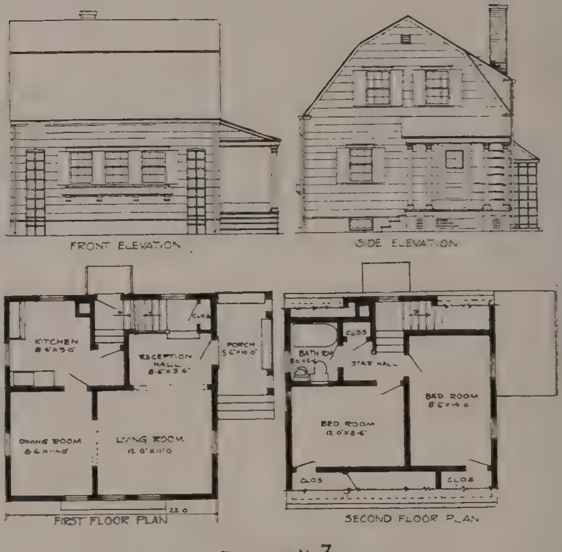
Each house is provided with a living-room, dining-room, kitchen, and bath-room, and furnished with a hot-air furnace with a water-back, a hot-water boiler, a kitchen sink, and three bath-room fixtures.

Interior Comfort First Consideration

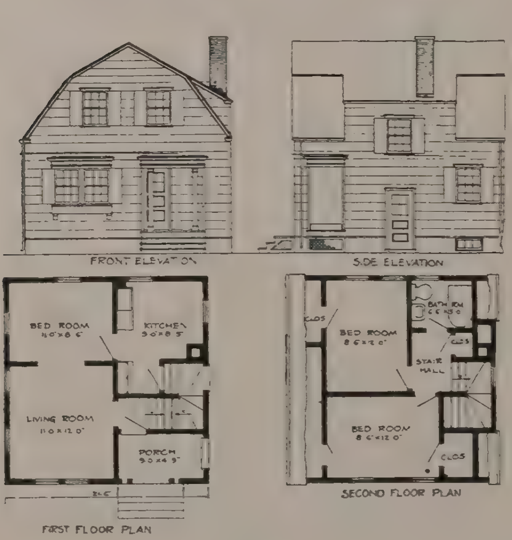
The exterior treatment adopted is, generally speaking, of the old New England village type, with the simplest possible roof lines, close eaves, small paned windows, and blinds. Simple lattice work is introduced here and there to relieve the bald spots, and flower-boxes are used under windows and on the sides of the porches to provide other simple additional elements of individuality. It has been the aim of the builders to put into the houses the greatest amount of interior comfort and value and minimize on exterior trimmings. While, for reasons of construction economy, the effort has been to use a minimum variety of plans, it has also been the endeavor to obtain the maximum possible variety of effects. As a result, twenty-nine exterior designs have been developed, and further variations are obtained



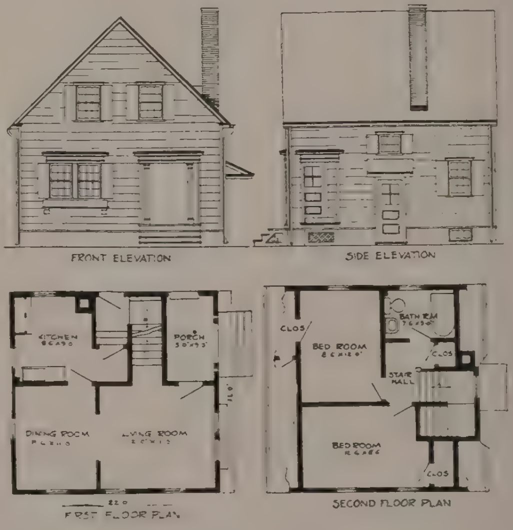
DESIGN No 1



DESIGN No 3



DESIGN No 5



DESIGN No 7

Elevations and Floor Plans of House Types Erected at Flint, Mich.

by the use of 24-inch shingles 10 inches to the weather, 16-inch shingles 6 inches to the weather, 10-inch siding and 6-inch siding. These materials are still further varied in effect, in the color schemes used, as follows: Shingle houses tinted white with green blinds and red brick chimneys, white with brown blinds and gray brick chimneys, cream with brown blinds and gray brick chimneys, gray with green blinds and red brick chimneys, gray with white blinds and red brick chimneys. Clapboard houses are painted white, cream and gray, with blinds and chimneys to harmonize. The roofs throughout are of a uniform weathered color.

Where the grades will permit a fall of level from the front to rear of the lots, the houses are set low to the ground, having only two steps in front, with 22 inches of foundation exposed in the rear, thus providing ample grade for cellar windows without requiring the expense of sunken areas. In other cases terraces are formed across the front of houses to provide a low effect; and in still others, the 22 inches of foundation shows on all four sides.

Various Devices to Avoid Monotony

Each block of houses has been studied as a whole in order to obtain a composition of roof lines that would be individual to itself, the suggestion of grouping among many of the houses being obtained by various means. The setbacks from the street line vary from 20 to 30 feet, and certain groups of three or five houses are emphasized by being set back, while the rest of the houses in the same block are set forward. Other variations are obtained by the use of different types of blinds, and also by using groups of windows differently arranged, with and without blinds.

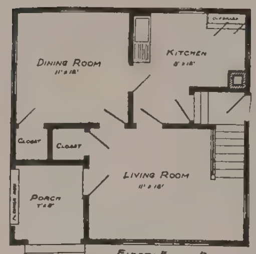
As stated above, all of these houses on this development at Flint are built from twenty-nine plans. These plans are in some places repetitions of each other with certain modifications, or with details repeated so that the multiplication of detail sheets has been eliminated, and the buying of materials as well as the construction simplified. Data regarding details can thus be passed on from one sheet to another, giving in connection with each design only the details which are peculiar to that one design. Stairways, for instance, are in many cases identical; likewise cased openings and colonnades, kitchen cupboards, and the like, so that the millwork problem is greatly simplified. The same also applies to porches, mullion windows, etc., which are repeated a number of times from one design to another, though usually with some change of location or other modification, so as to avoid the appearance of repetition.

Design No. 1 is a gambrel-roofed cottage with the slope of the roof to the street. It has a width of 27 feet and a depth of 17 feet, and is simply designed, with an entrance in the center into a stair hall, from which a living room opens at one side and a dining room at the other. The living room extends the entire depth of the house, and is a delightful room for a small cottage. It has connection with the kitchen through a rear hall, and the dining room is so arranged that it can be completely closed from the other part of the house, allowing a small family to economize, if desired, by eating for the most part at one end of the living room. The upstairs provides one large and one smaller bedroom and bath.

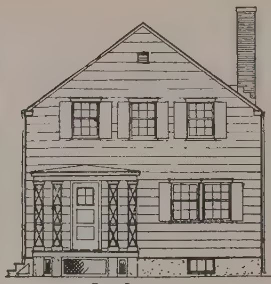
Plan No. 2 is a duplication of No. 1 so far as size and arrangement of rooms are concerned. Variety is secured by extending the upper story over the lower in front, making a porch along the entire front, and by a different arrangement of the second story windows.

Design No. 3 is almost square, being 22 x 21 feet 8 inches. It has a plain gable roof toward the street without windows and has the entrance on the side. This introduces an entirely different floor plan with a reception hall, open stairway and cased openings between the rooms.

Plan No. 4 has the same identical layout of rooms as No. 3 — the same framing, the same elevations, except that the entrance porch is at the front, the entrance being directly into the living room instead of through the hall. The hall in this plan thus forms a sort of cozy nook off the living room.

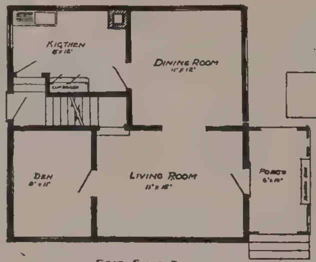


First: Floor·Plan

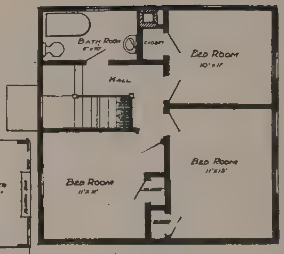


Side Elevation

Design No.13

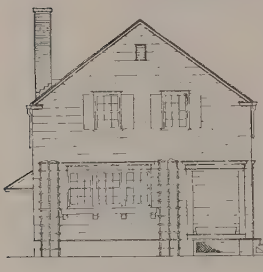


First Floor·Plan

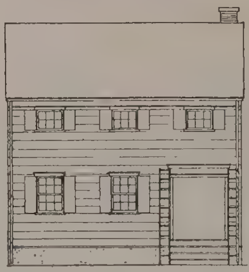


Second·Floor·Plan

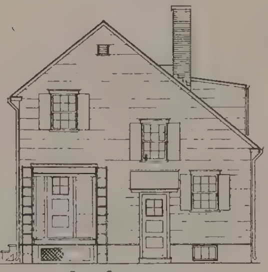
Design No 14



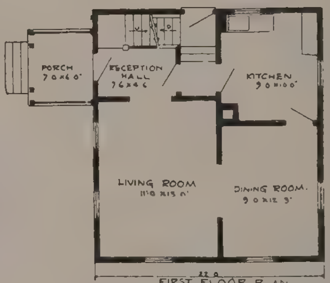
Front Elevation



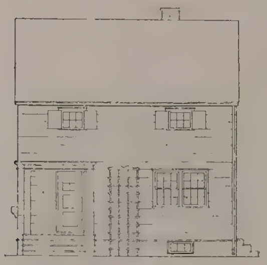
Front Elevation



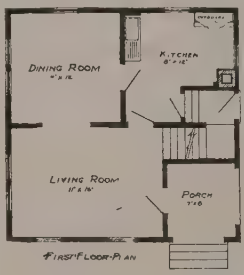
Side Elevation



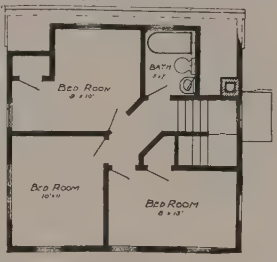
First Floor Plan



Side Elevation

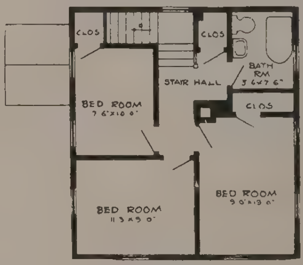


First Floor Plan



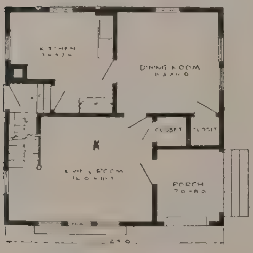
Second Floor Plan

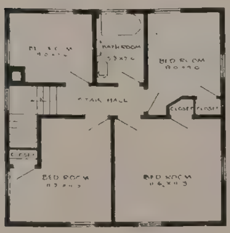
Design No. 12



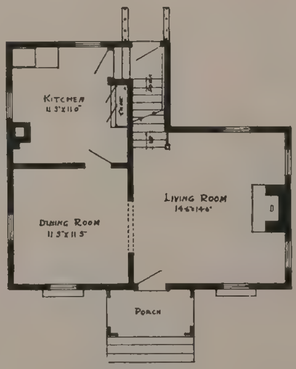
Second Floor Plan

Floor Plans, No. 8

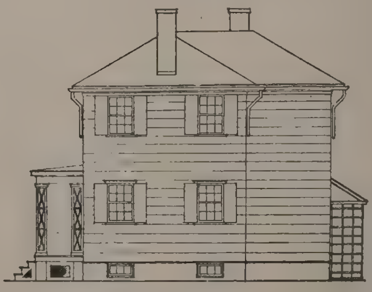




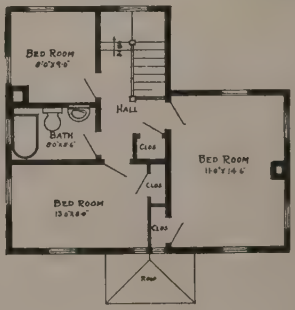
Design No 16



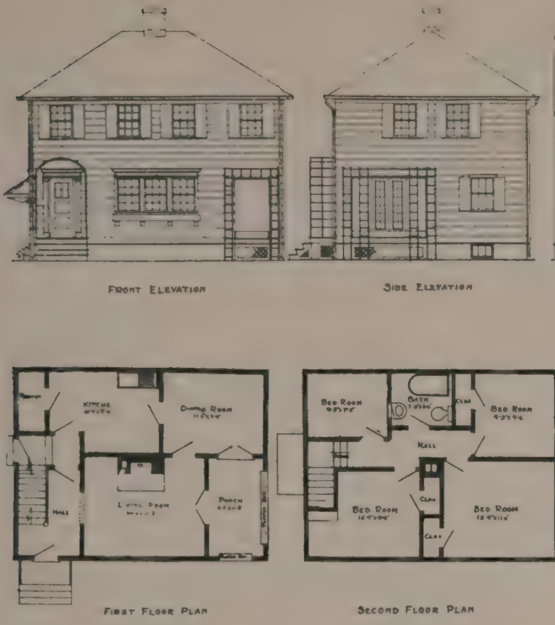
Side Elevation and Floor Plans
Design No. 18



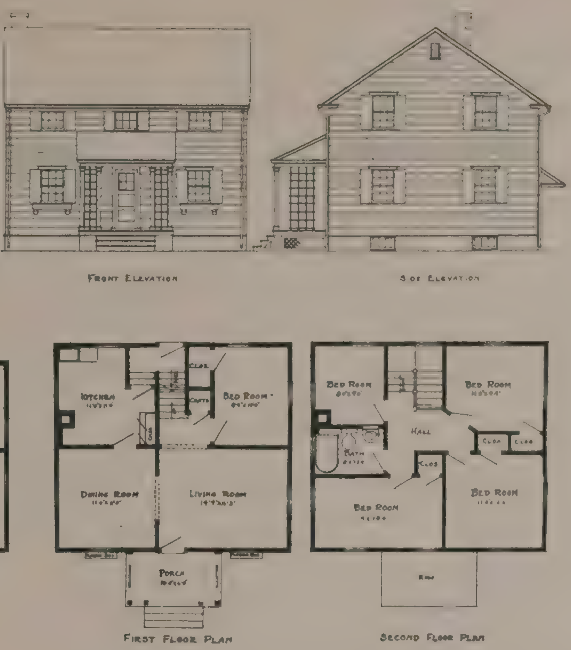
Side Elevation



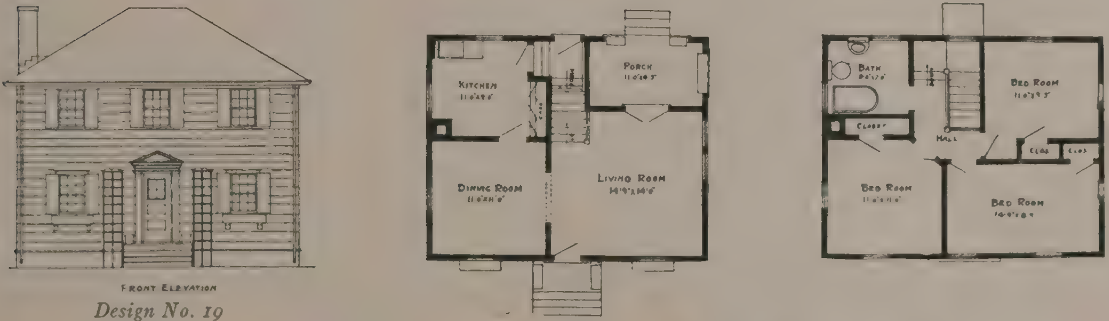
Elevations and Floor Plans of House Types Erected at Flint, Mich.



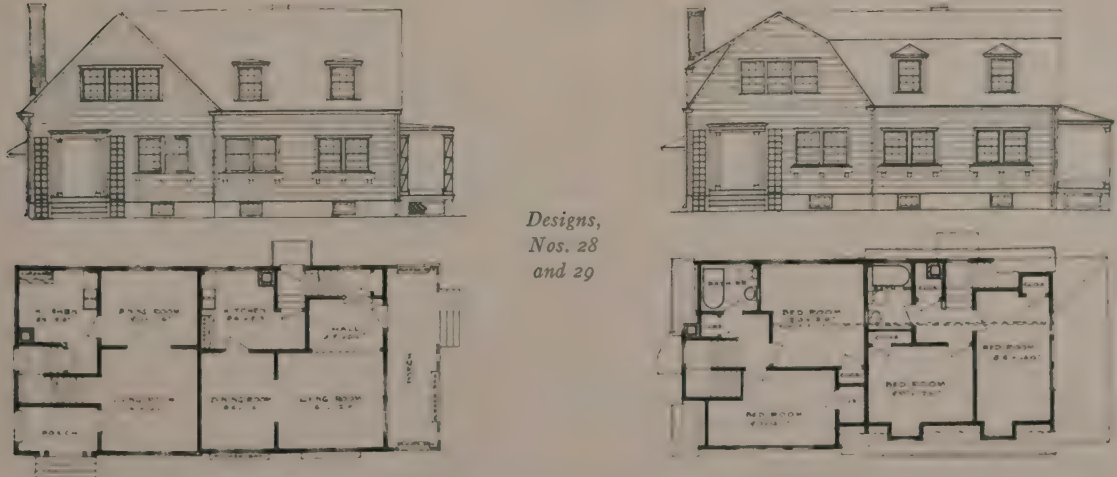
DESIGN No 21



DESIGN No 22



Design No. 19



Designs, Nos. 28 and 29

Elevations and Floor Plans of House Types Erected at Flint, Mich.

In Plan No. 5 we have a practically square house of the same dimensions, but with the gable swung to the street. The arrangement of rooms is not much different from the two previous plans, except that space which in the others was devoted to a hall is here given over to a porch.

No. 6 is a practical repetition of No. 4, except that the gambrel roof is replaced with a roof of single pitch and the house is given a different face toward the street. No. 7 is a similar variation of No. 5.

In plan No. 8 is introduced the front entrance out of center, with the conventional type of stair hall and kitchen back of it, and the living room and dining room to one side. The front is given variety by the small upper windows under the eaves.

No. 9 is built up around the same floor plans as No. 8, but with a hip roof and the addition of a side porch reached by French doors from the living room. No. 10 is, with a few changes in details, a practical duplication of No. 8, so that it is not necessary to show it. No. 11 duplicates No. 9, except that a gable roof is put on, with the gable to the front.

No. 12 starts what may be termed a new series. It still adheres to a practically square plan, being 24 x 23 feet 8 inches. This is the first case of an introduction of any irregularities in plan layout, as will be noted in the plan of the second floor. The foundation under the porch is unexcavated, reducing the size of the basement to that extent.

In Plan No. 13 we have elevations and second floor laid out almost identical with No. 12, except that the porch is changed to the opposite corner, and the treatment of the windows on the first floor is somewhat different. The first floor plan is changed to a considerable extent as here shown.

Plan No. 14 swings back to a side entrance, while No. 15 uses the same layout with a front entrance and the gable toward the street.

In No. 16 we have a reversal and slightly different arrangement of No. 13 and have the gables replaced in the front.

No. 17 is practically a duplication of No. 12 with a slightly different room and window arrangement.

No. 18 is the only one of the entire series to depart from the rectangular. This is, too, perhaps the least interesting of the designs, while it is more expensive by reason of its generous height, and the addition of a fireplace and other details.

No. 19 is a similar design, but returns to the rectangular, introduces a porch where the offset occurs in No. 18, eliminates the fireplace and encloses the whole under a plain hip roof.

No. 20 uses the same design under a gable roof. Designs from 21 to 24, inclusive, are variations of other plans, modifications being simply introduced to avoid monotony in appearance.

No. 25 introduces an additional room on the first floor which may be used as a library, den, or extra bedroom.

No. 26 has the same number of rooms with a slightly different arrangement and similar elevations, while No. 27 goes back to a variation of some of the plans earlier in the series.

Plans 28 and 29 are double houses with identical floor plans, but different elevations. It will be noted that they are admirably designed for building on a corner lot, one entrance being on one street and the other on the other street.

> "This is the true nature of home: It is the place of peace, the shelter not only from all injuries, but from all terror, doubt and division. In so far as it is not this, it is not home."—*John Ruskin.*

MODERN LABOR CAMPS ON THE DAYTON FLOOD PREVENTION PROJECT

By ARTHUR E. MORGAN

Chief Engineer, Miami Conservancy District

UNQUESTIONABLY, today, in the carrying out of large construction projects, the labor question occupies the center of the stage. Now and for some years to come, the question of getting men to do your work, and of keeping them after you get them, is one of the biggest single questions the employer faces. Old conditions are passing rapidly. New demands on the part of the men must be met, not only as to wages and conditions, but also as to the part the men are to have in determining them. And among the conditions, that of adequate housing for labor looms large. The days of tents and shacks — of unsightly, unsanitary, inconvenient camps — are gone, or rapidly going, on any first rate job.

Among those who have seen the thing that is coming, and who have taken steps to meet the new demand, are the men who have directed the policy of the Miami Conservancy District; and the five camps they have recently built in the Miami Valley may well be taken in many ways as suggestions of what all such employers may sooner or later find it best to adopt.

A Flood Prevention Project

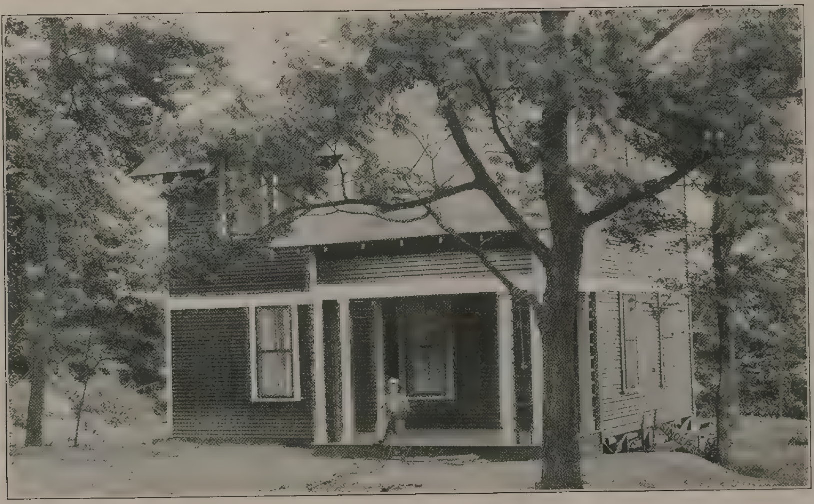
This District is a corporation, organized along drainage district lines, to carry out the extensive project for flood prevention in the Miami River Valley. Five years ago this river rose in one of the most disastrous floods which our history records, sweeping down the valley through Dayton, Hamilton and other cities, destroying hundreds of human lives and property reckoned at a hundred million dollars. The people of the valley, faced with so terrible a problem, girded themselves to grapple with it, determined that nothing like it should ever occur again. Government aid, whether state or federal, would be years in coming; might never come. They employed engineers, and undertook the project alone. All they asked of the state was a law that would enable them to go ahead with it. They got the law. The Miami Conservancy District is the result.

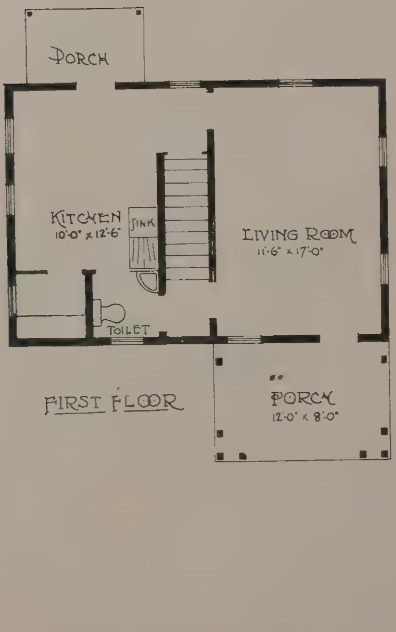
The engineers are solving the problem by the construction of five large dams, to be built across the Miami Valley and its tributary streams, behind which the water in flood seasons will back up, and through which it will be allowed to flow gradually away, without damage except temporarily to crops in the basins above. The work at these dams is just getting well under way. Some fifteen hundred men are now employed; and this number as time goes on will be increased to two thousand or more.

To accommodate these men a camp is being built at each dam. These camps are now rapidly approaching completion.

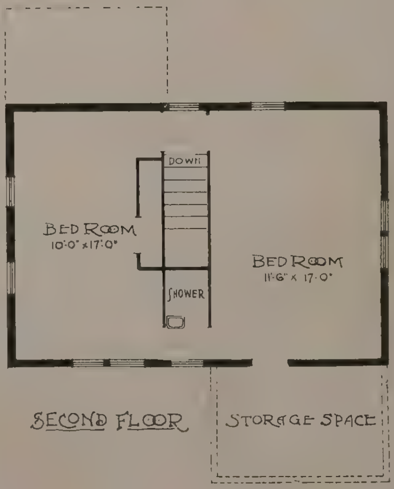
Camps That Are Modern Villages

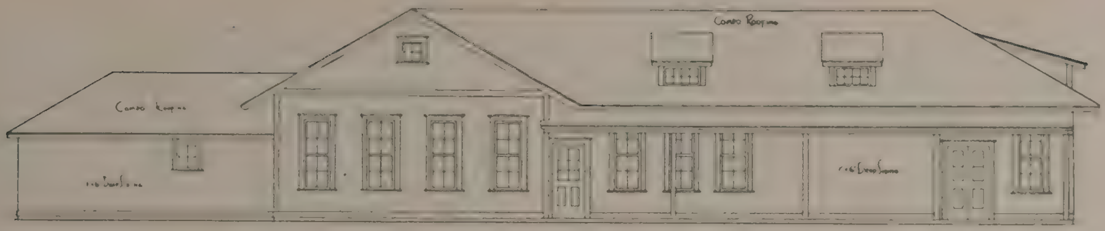
They have been built, as has already been hinted, with a certain breadth and boldness, facing not only the present labor shortage, but future conditions, local and national, which are to come. They are not so much camps as suburban villages, with all the modern conveniences, and in most cases with facilities of access to near-by cities by means of railways and interurban lines, which such suburban villages usually have. It is expected, indeed, that they will some day become such villages; that men will occupy them who will work in the cities, or at gardening, or who will make of them summer homes. Several of them lie in what are really picturesque and beautiful set-



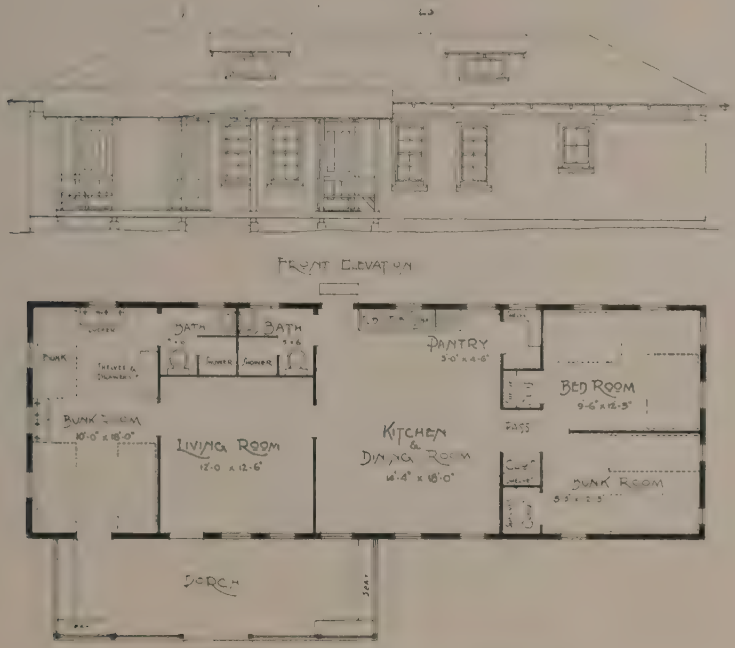


Germantown Camp Miami Conservancy District, and No. 3 Type Cottage with Floor Plans

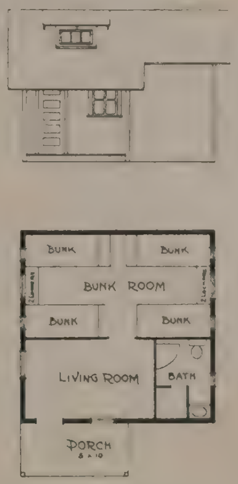




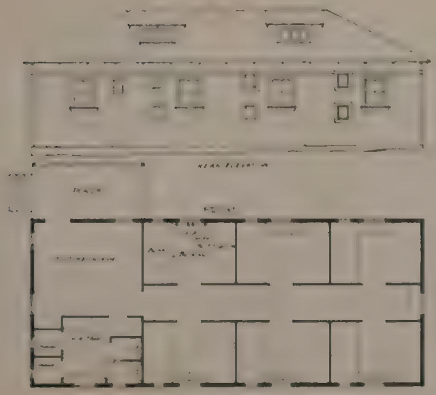
Elevation of Bakery and Butcher Shop



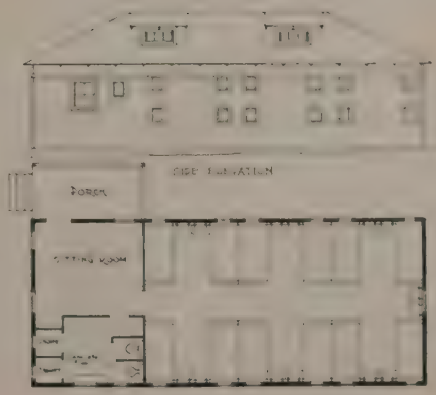
Combination of Dwelling and Bunkhouse



Four-man Bunkhouse



12-man Bunkhouse



24-man Bunkhouse

Bakery and Bunkhouses, Miami Conservancy District tings, such as might well attract the growing number of people who prefer a country home.

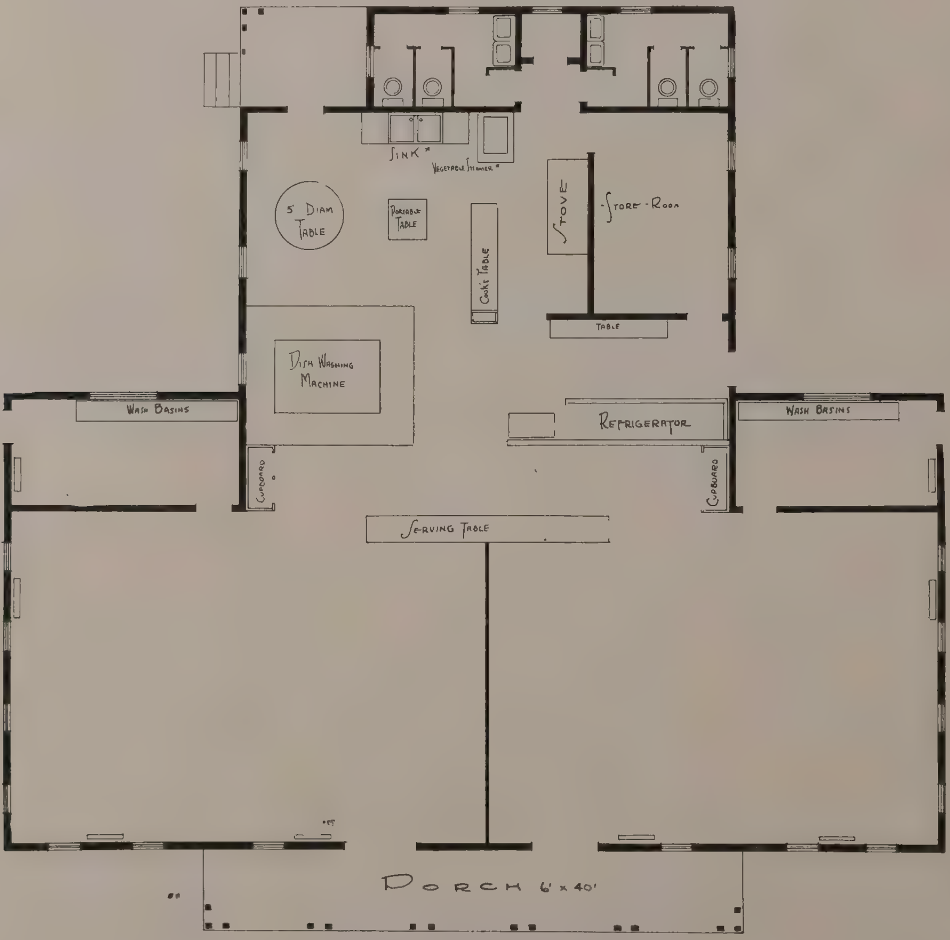
The cottages, in the main, are of the low, broad-roofed, one-story type that fits so well in a country setting. Simple in design and inexpensive in construction, they are yet architecturally well proportioned and conveniently planned for family use.

Five Designs In Cottages

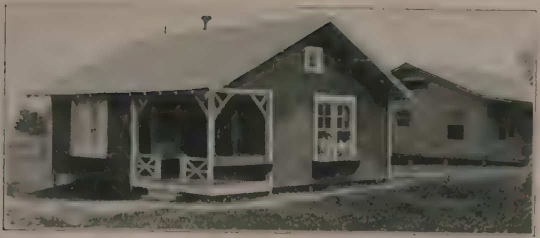
There are five different designs, all of which are shown both in plan and in photographic view. They are numbered for identification from one to five, beginning with the "Number One," the smallest and least expensive; and running up to the largest and highest in cost, the "Number Five." In addition, a "Number Six," a cottage bunkhouse, is shown, referred to later. A table below gives the size, number of rooms, rental, and approximate cost of each of the designs, set side by side for convenient comparison.

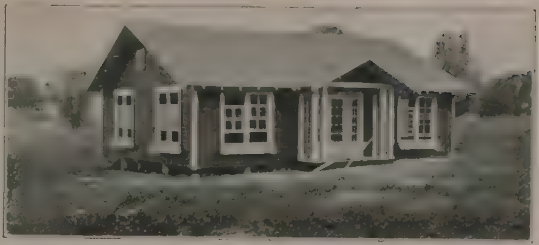
Style of Cottage	No. 1	No. 2	No. 3	No. 4	No. 5
No. of Rooms	3	4	4	5	5
Rental per Mo.	$13	$16	$16	$19	$21
Approx. Cost	$1,160	$1,240	$1,365	$1,420	$1,465

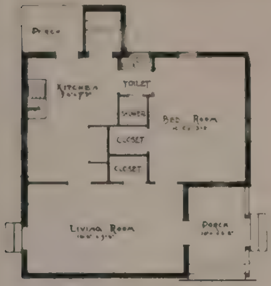
That such accommodations were welcomed by the men was proved by the demand for them several weeks before they were ready for occupancy. A hundred and twenty-five cottages have been built or are in process of building. (This number does not include messhalls, stores, first aid cottage hospitals, etc., but only dwellings.) Most of them are already rented.



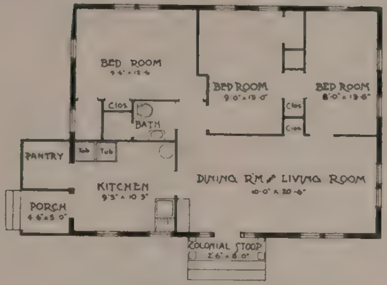
Floor Plan of Large Mess Hall



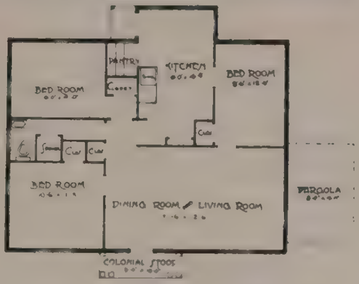




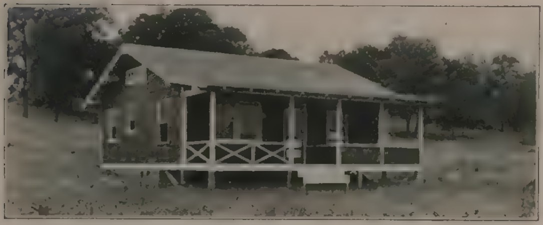
3-room Cottage and Floor Plan



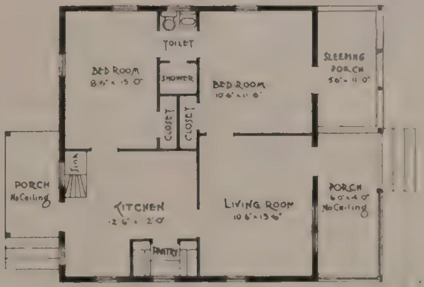
Floor Plan of No. 4 House

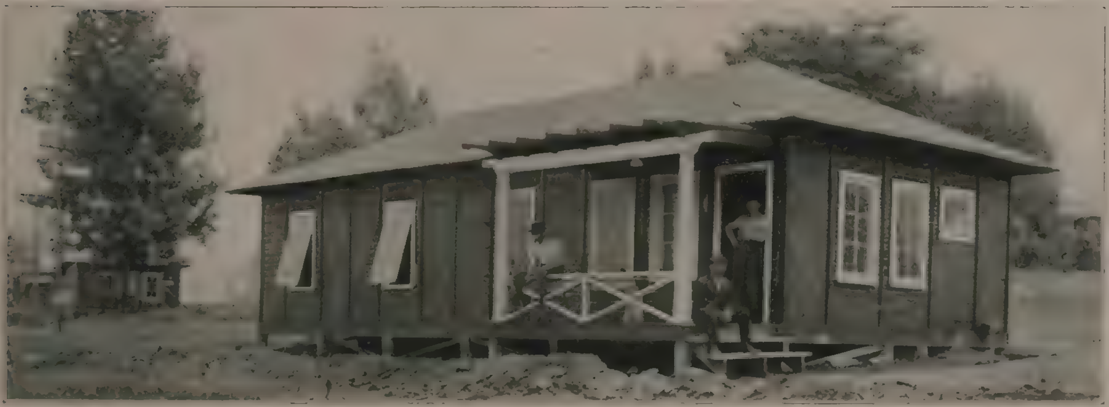


5-room Cottage and Floor Plan



4-room Cottage with Sleeping Porch





Twelve-man Bunkhouse

Cottages and Twelve-man Bunkhouse, Miami Conservancy District

As to the relative popularity of the different designs, there appears to be little choice. The lowest in price, the three-room "Number One," naturally leads. Most of the renters so far have been foremen, superintendents or specially skilled workers. It is expected, however, that many later cottages will be occupied by laborers.

Bunkhouses For Unmarried Workmen

The cottages described are intended for men with families. For single men bunkhouses are provided. These vary in size, being built to accommodate eight, twelve or twenty-four men. The general arrangement is the same in all. Each house has a porch, a sitting room, a wash and toilet room with shower baths, and sleeping rooms that accommodate either two or four men each. A man may have a room to himself by paying a higher rate. Each bunk has a window at its head for ventilation in summer. A floor grating the entire length of the bunkhouse, with steam pipes below, provides heat when necessary. The bunkhouse occupants may eat at the camp messhall, or they may board themselves.

A variation from the above arrangement is the cottage bunkhouse, accommodating five men who board with a family which occupies the same house. Care is taken in the design so that the domestic life of the family is separated as much as possible from the bunks and living room of the boarders.

Messhalls Have Hotel Equipment

The messhalls, where many of the men are already eating, will accommodate about two hundred men at a meal. The kitchens are equipped with the conveniences conforming to those of a good hotel: bake-oven, range, vegetable steamer, butcher's block, steam serving table, dish-washing machine, and a small refrigerating plant. These are not to be looked upon as frills. They are dictated by a sound dollars-and-cents policy. They are expected to pay. Commercial travelers flock to the hotel, which sets a good table. So do workingmen. The road to a man's good-will lies through his stomach; and a laborer's good-will is a ledger asset.

As the pictures show, each camp has a water system. Pure water, obtained from drilled wells, and regularly inspected by the district physician, is pumped through pipes to every cottage.

A Sewer System For Each Camp

Each camp has also a sewerage system, discharging into a combined septic and sedimentation tank of special design (a modified Imhoff tank) and thence, if found necessary, over a sand filter bed to the local stream. With pure water, sanitary sewerage, and watchful camp sanitation by the district physician, the health of the men will be maintained at a high level. Here again, the policy is expected to pay: Health is money, to employee and employer alike.

Besides the water and sewer systems, electric light and power are supplied from a pole line connecting with the Dayton Light and Power Company.

As to cost, a bunkhouse man who occupies a two-man sleeping room with a mate pays fifty cents a week. He can get a small room alone for seventy-five cents, or a larger one for a dollar a week. The four-man sleeping rooms also rent for fifty cents a bunk. Cots, springs and mattresses are provided with the rooms. Bedding the men must furnish for themselves. Meals at the camp mess cost thirty-five cents each.

Besides the cottages and bunkhouses mentioned, there is in each camp the usual store, a first aid cottage hospital, a community hall, where public meetings, movies, dances or other entertainments can be accommodated, and a school house for the children.

CO-PARTNERSHIP HOUSING IN ENGLAND[*]

By HERBERT S. SWAN

Executive Secretary, Zoning Committee, New York City

CO-PARTNERSHIP housing was inaugurated by the Ealing Tenants, Ltd., in a London suburb in 1901. Since then the number of co-partnership societies has greatly increased. Today there are probably sixty scattered throughout England, Scotland and Wales. The big cities of Birmingham, Glasgow, Liverpool and Manchester all have their co-partnership tenants' societies.

A co-partnership tenant society consists of a group of tenant members and outside investors who develop a tract of land with buildings, not in the interest of an absentee landlord, but in the interest of those who are to live in the houses.

The houses are not built for any particular class of people. An endeavor is made to provide different types of houses which will meet the wants, not only of the working class, but of a considerable range of persons.

In a co-partnership society the tenant does not become the owner of the house he lives in. In lieu of acquiring the deed to a particular house and lot, he pays a given amount of capital into the society. In other words, the members of the society collectively own all the real property in the community. As J. S. Nettlefold puts it, "No member can say, 'This house is mine.' They can all say, 'These houses are ours.'"

In a non-partnership society one must either buy a house or rent it. If one rents he is still, even after many years' payment of rent, only a tenant, and the house still belongs to the landlord. If one buys and is later compelled to move, he all too often leaves an unsalable home behind him. In a co-partnership society one can acquire the value of a home without curtailing his mobility, as his investment, if not always transferable without loss, will at least net him as much income as any other safe property.

Co-partnership in housing is an attempt to combine the advantages of both tenancy and ownership of houses. The interests of tenant and investor are harmonized by an equitable use of the profit arising from increased values and the careful use of property.

Distinguished from Garden Cities

Although all the co-partnership developments, so far as town-planning is concerned, follow the lines of a garden city, they are to be sharply distinguished from such communities as Bournville, Port Sunlight and Letchworth.

Bournville is purely a philanthropic enterprise founded through the generosity of George Cadbury, cocoa manufacturer, and has as its object the amelioration of working-class conditions and the provision of improved dwellings, not only in and around Birmingham, but throughout Great Britain. The leases in Bournville are for a period of ninety-nine years.

Port Sunlight, on the other hand, is an industrial development worked out by Lever Bros., soap manufacturers, along what they call "prosperity sharing" lines, for the housing of their employees. Only persons employed by the company may lease houses. The houses are let, not at commercial rents, but for an amount just sufficient to cover their upkeep.

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Letchworth, the first garden city, instead of being owned by the tenants collectively, is held by a private company with a limited dividend. Property is leased for periods of either 99 or 999 years.

Operation of a Co-Partnership Society

The method adopted by a co-partnership society in developing its estate is as follows: It first secures suitable building land. This land is carefully planned. The number of houses per acre is strictly limited. Buildings are arranged to insure not only healthful and cheerful houses but also pleasant surroundings. Substantial houses of a variety of types are built. These houses are let at ordinary rents. Dividends on capital are limited to 5 per cent. Any profits remaining after the payment of current expenses, interest and amortization charges on mortgages and loans, and dividends on capital are divided among the co-partnership tenants in proportion to the rents paid.

Advantages of a Co-Partnership Housing

The advantages to the tenant claimed for co-partnership housing are as follows:

1. He gets a house at a rental which, if internal accommodations and external surroundings are compared with what is obtainable at most places, is less than he would have to pay elsewhere for the same accommodations.

2. He secures freedom from loss on his savings should circumstances require him to leave the neighborhood.

3. The capital for building his house is provided at a cheaper rate than it could be obtained by any other system that is commercially sound.

4. Should values go up, he gets the benefit, either by way of a dividend on his rent or by paying a rental which is below the market value.

5. He secures practically all surplus profit after the fixed charges have been met.

6. The benefit of the "unearned increment," if any, accrues to the tenants, and not to a ground landlord who has no interest either in the tenants or the neighborhood.

7. The tenants as a whole can gradually relieve themselves of dependence on outside capital altogether by accumulation of their own savings. By gradual process, therefore, it lies with the tenants to transfer the ownership from non-tenant shareholders who take the main risk to begin with, to tenant shareholders, who, it is hoped, may collectively become the ultimate owners.

8. He can invest at 5 per cent, in the society of which he is a tenant, any savings he finds it possible to make out of his earnings.

9. He gets his house, with a small garden attached, in a neighborhood where there is plenty of fresh air, and the house itself is one with some individuality in which a tenant can take pride, instead of being an insignificant unit in an interminable row of jerry-built ugliness.

10. He secures a social atmosphere which awakens new interests and creates a collective friendship unknown under the individual system of ownership.

The outside investor benefits by co-partnership housing no less than the tenant. Although capital does not pocket the profits in excess of 5 per cent, any surplus profit above that amount affords just that much more security for the continued payment of the regular dividends on stock or of interest on loans. It is, of course, to the interest of the tenant members, who receive the surplus profits, to make these profits as large as possible by taking care of the property and thus lessening the expenditure on repairs, by helping to find tenants for empty houses, and by punctual payment of rent. The capital invested by the tenants, moreover, furnishes a guarantee fund upon which the society can, if necessary, draw in order to pay arrears of rent. Loss by arrears of rent is practically impossible.

Co-Partnership Tenants, Ltd.

The need for propaganda work and co-operation between different societies led to the formation in 1904 of the Co-partnership Tenants, Ltd., a central organization which some fifteen societies have now joined. In promoting the development of co-partnership societies, the Co-partnership Tenants, Ltd., provides expert advice as to the best methods in obtaining, laying out, and developing estates; assists in raising the necessary capital for its federated societies; and facilitates the pooling of orders where practicable, so that the benefits of wholesale cash dealing in building and other materials are secured. It also inspects all accounts and books of the several associated societies, to insure a reliable administration of the estates.

The rapidity with which co-partnership housing has grown is shown in the foregoing statistics of the societies federated with the central organization. The data for the societies not associated with Co-partnership Tenants, Ltd., are unfortunately not available.

By January 1, 1917, these fifteen societies had erected a total of 3,702 houses. The character of these developments is suggested to some extent by the number of houses rented at different weekly rents.

Weekly Rent	Number of Houses
Below $1.50	643
From $1.50 and below $2.00	911
From $2.00 and below $2.50	1,011
From $2.50 and below $3.00	564
From $3.00 and below $3.75	236
From $3.75 and below $5.00	109
Over $5.00	228
Total	3,702

Dividends on Rent

Some societies distribute the rent dividend among all the tenants. Other societies distribute it only among the tenant investors. In the latter case, the share of each tenant who is not an investor is carried to the reserve fund. The dividend on rent, like the dividend on capital, is sometimes limited. Thus Avonmouth limits the amount of the rent dividend to 10 per cent of the rent paid. Permanent tenancy is in some instances encouraged by adjusting the dividend to the aggregate amount of rent paid by the tenants during the period that they have respectively been tenants.

Members in arrears with their subscriptions or installments enjoy no bonuses. Their rent dividends are forfeited to the reserve fund.

The rent dividend, instead of being paid in cash to the tenant, is generally credited to his account until it equals either the minimum amount of his expected investment or the value of the dwelling he occupies. After a tenant has fulfilled all his obligations to the society as an investor, he receives his rent dividend in cash.

Name of Society	Date of Organization	Area (Acres)	Area of Open Places (Acres)	No. of Houses When Completed	Value of Land and Buildings Jan. 1/17	Estimated Cost of Estate when Completed
Ealing Tenants, Ltd., London	1901	62	13	700	$1,281,500	$1,500,000
Anchor Tenants, Ltd., Leicester	1907	48	4	350	169,625	750,000
Manchester Tenants, Ltd	1908	11	2	136*	281,565	281,565
Fallings Park Garden Suburb Tenants, Ltd., Wolverhampton	1907	6	1	75*	98,500	100,000
Garden City Tenants, Ltd	1905	39	6¼	323*	493,900	494,000
Derwentwater Tenants, Ltd	1909	2¼	1¼	27*	33,775	37,500
Liverpool Garden Suburb Tenants, Ltd.	1910	58	8	600	700,000	1,100,000
Sevenoaks Tenants, Ltd	1904	6	1¼	80*	120,175	120,675
Harborne Tenants, Ltd	1907	53	3	500*	873,750	875,000
Stoke-on Trent, Ltd	1910	38	3	412	220,000	600,000
Hampstead Tenants, Ltd	1907	471	47	5,650	724,335	9,185,000
Second Hampstead Tenants, Ltd	1909				1,473,060	
Hampstead Heath Extension Tenants, Ltd	1912				841,610	
Oakwood Tenants, Ltd	1913				793,840	
Rudheath Tenants, Ltd	1916	10	1½	130	70,000	135,000
Fifteen Societies		804¼	91¼	8,983	$8,175,635	$15,178,740

* Houses all built.

Legal Limitations

Co-partnership tenant societies are registered under the Industrial and Provident Societies Act, 1893, as "Public Utility Societies." This act lays down certain broad fundamental principles that control the policy of all co-partnership societies. In the first place, it prohibits the payment of any interest or dividend in excess of 5 per cent per annum. In the second place, it prevents any individual, whether tenant or not, from holding shares worth more than $1,000. This restriction, however, does not apply to outside societies. One co-partnership society may purchase securities issued by another co-partnership society. There is no limit on the amount of stock that an outside society may hold.

Subject to these two general conditions, each society finances its operations in its own manner. The necessary capital is obtained in a variety of ways. Some societies raise all their funds through the sale of common stock (shares), the issuance of bonds (loan stock), and the flotation of mortgages. Other societies, in addition to issuing bonds and floating mortgages, sell both preferred (either co-partnership or tenants' investment stock) and common stock. Although there is a limit upon the amount of stock which an individual may own, there is no limit upon the amount which he may invest in bonds or mortgages.

Government Loans

A portion of the capital used in developing the co-partnership societies has been secured from the national government.

The first societies found that it required much effort and costly advertising to obtain the necessary capital. These expenses greatly increased the cost of the houses. The Housing and Town Planning Act of 1909, therefore, authorized the Public Works Loans Commissioners to grant loans to Public Utility Societies for housing purposes up to two-thirds of the value of the houses and land, after the houses are built.

Even before the war put a stop to practically all private building, there was considerable agitation to have the percentage of extended government credit increased. As the repayment of the loan would commence in the first year, and as the houses, if properly constructed, would last much longer than the thirty or forty years for which the loans were made, it was claimed that the government's security would improve each year. The risk of loss in making loans to a number of societies scattered all over the country would moreover be less than if the loans were confined to a single town. While houses in a given town might depreciate in value, this would not be so likely to happen in many towns at the same time. The national advantage of having, scattered throughout the country, building estates laid out in accordance with the latest and best methods of development, and covered with houses that would set a high standard for other builders in the neighborhood, was also stressed, the claim being made that the general standard of building had frequently been raised in the vicinity of tracts developed by co-partnership societies.

The emergency created by the war seems to have been more potent than all these arguments. At any rate, shortly after the outbreak of the war in 1914, the amount of government credit that might be loaned to these societies was increased to 90 per cent.

Before the war, the government money was loaned at an interest rate of 3½ per cent if repaid in 30 years and at 3¾ per cent if repaid in 40 years. Since the outbreak of the war these rates have been increased to 4 and 4½ per cent respectively. The combined interest and sinking fund charge at present is 5.78 per cent if repaid in 30 years, 5.43 per cent if repaid in 40 years.

Tenants' Investments

Although non-tenants as well as tenants may become investors in a co-partnership society, the aim is gradually to repay the capital invested from the outside so that the estate may become increasingly the property, if not the sole property, of the tenants. The rules governing the investments that must be made by the tenants to attain this object are very precise. A few illustrations at this point may not be amiss. At Avonmouth, for instance, each member of the society, tenant or non-tenant, must hold at least one share of common stock worth $25. In addition to this, every intending tenant must, unless he makes arrangements to the contrary, apply for an amount of preferred (tenants' investment stock) equal to not less than one year's rent of the house he expects to occupy. An amount of preferred stock equal to at least one-sixth of the year's rent must be paid in full on the allotment of the stock and before the commencement of tenancy. Thereafter he must pay for the preferred stock allotted to him, and from time to time to be allotted to him, in such installments as the management may stipulate when the allotment is made.

To begin with, the two original Hampstead societies obliged the tenant to buy stock. But this requirement was, however, changed in 1910. Since that date each tenant investor has been expected ultimately to purchase bonds (loan stock) to the amount of $250, or two years' rent of the house occupied, whichever is the greater. The amount of bonds that a tenant must take up is subject to modification by the management, but no change can be retrospective.

The Oakwood Tenants permit the lessee to invest in either bonds or in preferred stock, as he may determine. If he invests in bonds, it must be for not less than $250 or a sum equal to two years' rent, whichever is the greater. If he invests in preferred stock, it, too, must be equal to at least two years' rent, but on the payment of this amount he may be required from time to time to apply for additional preferred stock equal to one year's rent, until a sum equal to ten times the rent of the house he first occupied has been reached. If bonds are subscribed for, they must be paid for in full on allotment; if preferred stock, $25 on allotment and $15 a year, or 10 per cent of the yearly rent, whichever is the greater, in monthly installments.

The Fallings Park Tenants expect every non-tenant member to subscribe for at least $100 worth of stock; every tenant member for at least $250 worth of stock.

This stock need not be subscribed for at once, nor does it have to be fully paid for at the time of allotment. The first $5 worth, it is true, must be paid in cash, but $15 a year, in equal monthly installment, is all that is required in the way of payment for the first $50 worth of stock taken. When this sum has been fully paid up, the annual amount demanded during the year in equal monthly installments is reduced to $7.50. Installments may be paid in anticipation of their becoming due. Fines are imposed on arrears to secure prompt payment of installments.

Proportion of Stock to Bonds

The proportion of stock issued to bonds has become a very practical question. As stock generally pays a dividend of five per cent, and bonds an interest rate varying from four per cent to four and one-half per cent, it is obvious that the average carrying charge on capital will vary according to the relative amount of stock sold. If much stock is issued, the carrying charge will be comparatively high; if little stock is issued, comparatively low. The tenants, of course, gain by having the interest and dividend charges on capital kept down to the lowest possible figure: the smaller the dividends on invested capital, the more they receive in the way of dividends on rent. One-quarter of one per cent more or less on capital may in some instances mean all the difference between no dividend at all or one of ten per cent on rent. Every increase in the capital charges, no matter how slight, makes serious inroads upon the rent dividends.

The following statistics show the amount of capital raised from different sources by three of the co-partnership tenant societies:

The Oakwood Tenants, Ltd., had assets on January 1, 1917, valued at approximately $860,000. Of this amount about $105,000 was represented by common stock, $36,000 by preferred stock, $178,000 by bonds, and $541,000 by mortgages, unsecured loans, reserve funds and other items.

The Hampstead Tenants, Ltd., had assets on January 1, 1917, valued at about $760,000. Of this amount approximately $133,000 was represented by common stock, $202,000 by bonds, and $425,000 by mortgages, unsecured loans, and the like.

The Second Hampstead Tenants, Ltd., had assets on January 1, 1917, with a book value in the neighborhood of $1,515,000. Of this sum $300,000 was represented by common stock, $395,000 by bonds, and $765,000 by mortgages.

The accompanying table shows how many persons held different amounts of the outstanding common stock, preferred stock, and bonds in these three societies at the beginning of 1917.

Number of Persons Owning Different Amounts

1. Common Stock

Site of Holding	Hampstead Tenants, Ltd.	Second Hampstead Tenants, Ltd.	Oakwood Tenants, Ltd.
Under $50	1	...	...
Over $50 to $125	43	27	...
Over $125 to $250	127	99	3
Over $250 to $500	29	19	2
Over $500 to $750	2	4	...
Over $750 to $1,000	9	8	4
Over $1,000	1	1	1
Total	212	158	10

2. Preferred Stock

Site of Holding	Hampstead Tenants, Ltd.	Second Hampstead Tenants, Ltd.	Oakwood Tenants, Ltd.
Under $50	...	...	4
Over $50 to $125	...	...	14
Over $125 to $250	...	...	110
Over $250 to $500	...	...	30
Over $500 to $750	...	...	4
Over $750 to $1,000	...	...	7
Over $1,000	...	...	9
Total			178

3. Bonds

Site of Holding	Hampstead Tenants, Ltd.	Second Hampstead Tenants, Ltd.	Oakwood Tenants, Ltd.
Under $50	17	130	4
Over $50 to $125	44	172	14
Over $125 to $250	49	119	110
Over $250 to $500	32	50	30
Over $500 to $750	6	17	4
Over $750 to $1,000	8	20	7
Over $1,000	13	19	9
Total	169	527	178

Payment on Installment Plan

No matter in what the tenant is obliged to invest his money, whether it be common stock, preferred stock or bonds, it is customary to allow him to pay it either in full or in installments. Whichever method he chooses, the interest or dividend he receives is on the amount paid up. If he pays the full amount in cash, he receives his interest in cash; if he pays in installments the interest, instead of being paid to him in cash, is credited to him on his unpaid balance. The dividend on stock is 5 per cent, and the interest rate on bonds in sums of less than $250 is usually 4 per cent; on bonds in sums of $250, and upward, usually 4½ per cent. The increased interest rate on large amounts is to encourage speedy payment of the required minimum.

Retirement of Outside Capital

Provision for paying off the excess stock held by shareholders beyond a limit fixed by the society from time to time is made, in some instances, for the purpose of facilitating the retirement of outside capital. The charge has been made that the Co-partnership Tenants, Ltd., has attempted to subvert the co-partnership principle by contriving to get a preponderant voting power in its affiliated societies. Such control as it has was achieved through its financial operations. It borrows money by issuing stock to outside investors, and investing the money so obtained in these societies. Its investors are not known to the tenants; their names and addresses are known only to the central organization. It is felt that there is little hope, therefore, that they will be able to see things from the tenant's point of view. They vote solidly for the policy of the central society, whatever that may be, so long as they are satisfied with its management of their investments.

These fears have apparently not been altogether without some ground. In the Oakwood Tenants, Ltd., for instance, the Co-partnership Tenants, Ltd., on January 1, 1917, owned $100,000 of the $105,750 worth of common stock issued. In the Second Hampstead Society, on the same date, it owned $255,550 worth of the $299,940 worth of stock issued. To allay this criticism, the Co-partnership Tenants Ltd., has agreed to transfer capital to the tenants in proportion to its own holdings in the society about $50 worth of stock to a $100 worth of bonds. Under this arrangement, every tenant will have the opportunity to become a partner by investing the same proportion of money in stock and bonds as the promoting partners.

Society has First Lien on Tenants' Investments

The society generally has a first lien upon the investment of any member for debts due it by him. Any sum credited to a member may be set off toward the payment of such debts.

Repairs, Exterior and Interior

All exterior or structural repairs are, as a rule, charged against the society. Interior repairs are, however, done by and at the expense of the tenant to the satisfaction of the management. When interior repairs have, in the opinion of the management, become necessary, it may order them to be done. If the repairs are not paid for on demand by the tenant, the society may deduct their cost from any sum credited to the tenant's investment account.

Ejectment of Tenant

If a tenant becomes an impossible neighbor, the management may give him notice to quit his house, repay the amount of his investment, and end his relation to the society.

Transfer of Investments

When a stockholder ceases to be a tenant, the society has the right to buy back his stock. In the event of the society being unwilling to exercise this privilege the stockholder may transfer his stock, subject to the approval of the management, to any other member of the society. If the transferee is not a member, he must first be approved of as such by the management before the transfer can be registered. The society usually obligates itself to repay the whole sum credited to a member where it refuses to sanction its transfer. This obligation, however, does not apply to members so long as they remain tenants of the society.

Considerations Affecting Control of Society

In certain societies all the tenants are required to be shareholders; in others they have to be bondholders; and in still others they are obliged to be both shareholders and bondholders. In some cases, provision is made to admit as tenants persons who are neither shareholders nor bondholders subject to the condition that they make a minimum deposit. The detail requirements in this respect are conditioned by various considerations.

Sometimes it may not be desired to vest too large a degree of self-government in the hands of the tenants. In such a case the shareholders would probably control the management, and the tenants, instead of being encouraged to buy stock, would be forced to acquire bonds. In other words, the tenants would be persuaded to acquire a financial stake in the society without at the same time obtaining a voice, or at least a controlling voice, in its management.

The views of Henry Vivian are especially interesting on this point.

"Tenants' co-partnership or labor co-partnership," he says, "is not a fixed system; it is an attempt to embody into a working contract, expressed in rules, articles of association, or agreements, the idea of unity of interests. The terms of the partnership will vary without end under different circumstances. The adoption of co-partnership by any business and its workmen does not necessarily mean that the business will in the future hand the management of its affairs over to its workmen. In most cases, any one with the slightest experience in business affairs knows that before very long there would be no business to manage. Nor does tenants' co-partnership necessarily mean that the business of estate development involves handing the management of estates over to the tenants. In the case of labor co-partnership or tenants' co-partnership it may mean the adoption of such a transfer of management to employees or tenants, as the case may be, but whether this is so or not cannot be settled by employees demanding the control of a business, or tenants demanding the control of an estate as a right, but by it being proved that such a development is wise. If, in the practice of co-partnership on a more or less limited scale, the employees or the tenants demonstrate that some extension of the principle is advantageous, then the chances are it will be extended. It is experiment alone under a variety of forms of co-partnership contract, whether in tenancy or employment, which can determine whether there is any best form."

Bonds or Stock for Tenants

The society may be perfectly willing to let the tenants control its policy, but conditions may make it more desirable for the tenants to hold bonds than stock. The bonds generally rank for interest before the stock. In addition to this, they also, as a rule, have a prior claim on the assets of the society. There are, however, cases as in the Avonmouth Garden Suburb, where the preferred stock in the liquidation of the society ranks *pari passu* with the bonds for both principal and interest.

Bondholders, it should be mentioned, are occasionally given a voice, though not as big a voice as the shareholders, in the selection of the management. Thus, at Avonmouth, every member has one vote for every complete $25 share of common or preferred stock or for every complete $250 bond held by him.

The experience at Ealing, for example, was that the tenants were very reluctant to take up the amount of fully paid stock required. To make it easier for the tenants to acquire stock, the installment method of paying for it was inaugurated. Even this did not help. At one time more than half the tenants in the suburb were not investors, notwithstanding the entreaties of the society. To have pressed the point would have meant that the houses would have remained empty. It was then decided to alter the rules so as to enable the holders of bonds, which could be taken up in smaller installments than stock, to participate like the stockholders in the dividends paid on rents. This policy has been most successful. Since its inauguration, practically every house let has been leased to a tenant who has subscribed for bonds.

Protecting the Tenant's Investment

Where his employment is of an uncertain character, a tenant may find it inadvisable to invest in either the society's stocks or bonds. Conditions may occur where the tenant, if he should be obliged to leave his house, could not find any one to take over his investment, except at a financial loss. This difficulty has been remedied in some societies by accepting, in exceptional cases, a deposit of a certain sum from the tenant in lieu of obliging him to purchase stock or bonds. This deposit, like the stock and bonds, may be paid in full at one time or in installments.

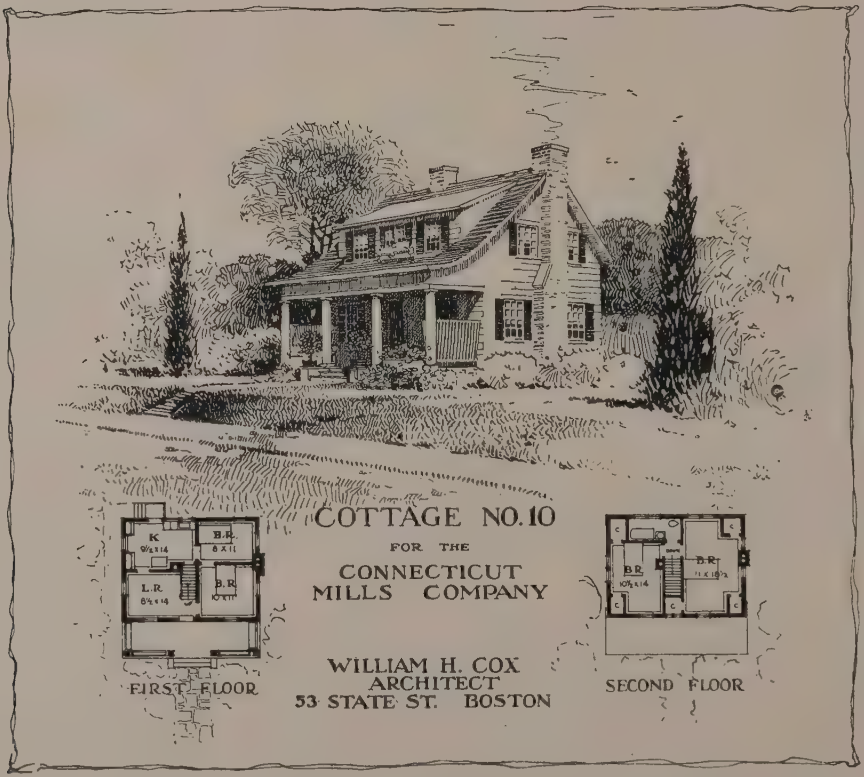
That the degree of management to be entrusted to the tenants must be determined in each case is the view of Henry Vivian, chairman of the Co-partnership Tenants, Ltd.

"The problem that confronts us," says Mr. Vivian, "in working out the co-partnership tenancy idea on our estates is to insure that those who become partners shall supplement the efforts of the board and officials to promote the welfare of the enterprise and to add to its stability and security. This question has been specially under the consideration of the Board of the Co-partnership Tenants, Ltd., for some two or three years. The Board, as a result of its experience, has come definitely to the conclusion that the unrestricted admission to complete partnership of tenants who have only a weekly tenants' interest, coupled with a small contribution to capital, which, as it is paid out on the tenant leaving, only in effect amounts to a deposit, is not the most satisfactory way of securing the co-operation of the tenants in promoting the welfare of the society.

"Under such a plan we admit to partnership those with a minimum of experience, sense of responsibility, and capital at stake, with no assurance that it is even their intention to make a permanent home for themselves on the estate. Human nature being what it is, many of these partners are sure to take a truly personal view of the questions affecting the estate's welfare, and if their private wishes are not satisfied by our officials, rules and tenancy agreements notwithstanding, they act regardless of any injury their conduct may inflict."

Limiting the Right of Membership

Mr. Vivian suggests limiting the right to become full members of a society in the future to those who have been tenants for a period of three years and who hold a minimum amount of common stock. At the same time, Mr. Vivian would withdraw the right of members to have their investments returned to them when they cease being tenants. These provisions would oblige those received into full partnership, not only to demonstrate their intention of making their home on the estate by acquiring a certain length of residence, but also definitely to risk something on the success of the venture. They would not be able to rid themselves of all responsibility by giving a week's notice and clearing out.



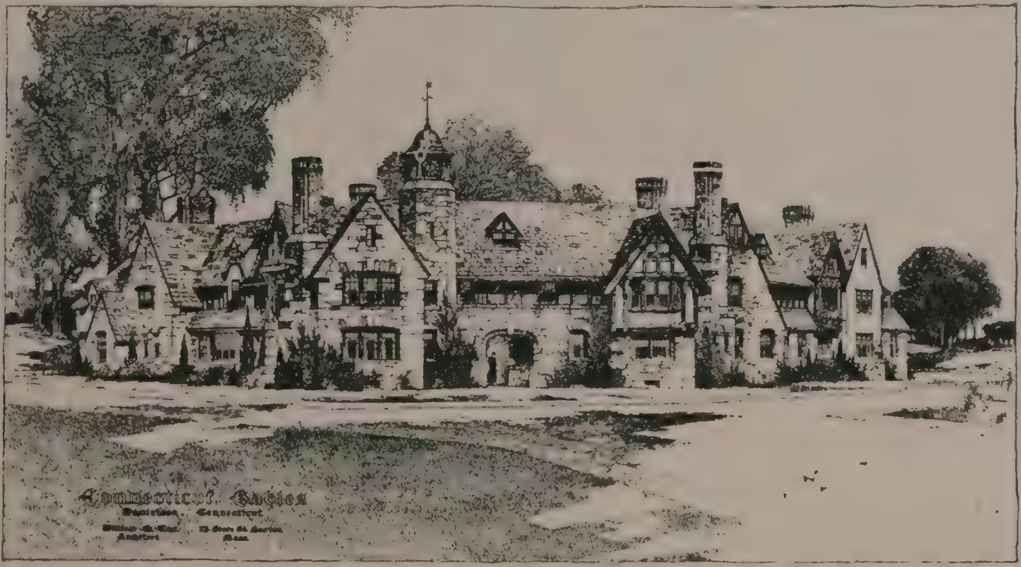
Cottage Types, Danielson, Conn.

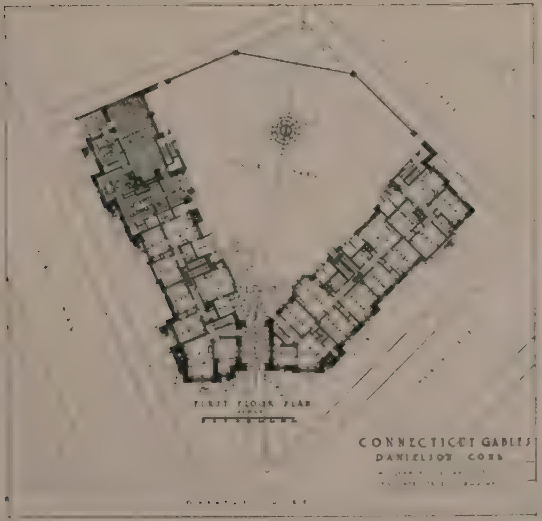
DANIELSON, CONNECTICUT

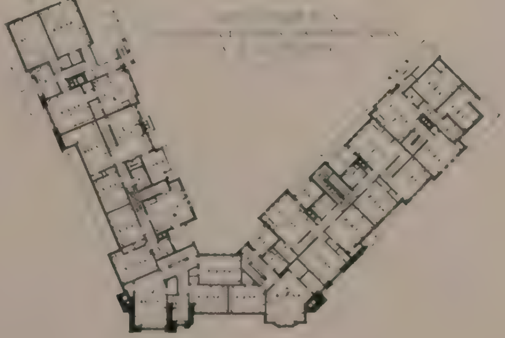
THE "VILLAGE BEAUTIFUL" DEVELOPMENT OF THE CONNECTICUT MILLS COMPANY

By W. H. COX, *Architect*

THOUGHTFUL planning of the housing of the employees of the Connecticut Mills Company has proved not only a humanitarian project, but a profitable investment for that company. The Connecticut Mills are located in Danielson, Conn. In the planning of the houses for its employees the company has had uppermost in mind the desire to create a genuine home life, to encourage a spirit of contentment and an interest in the com-



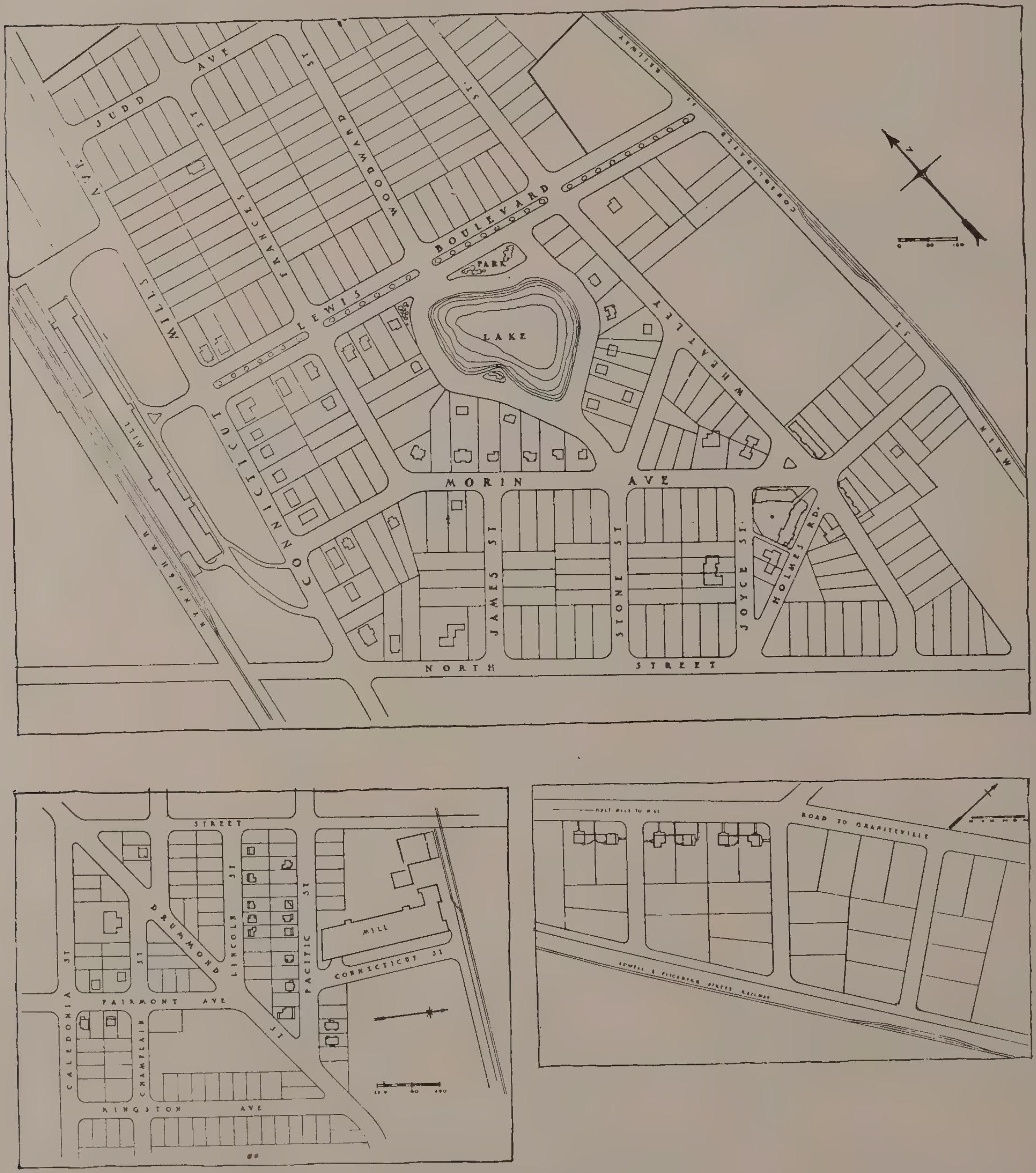




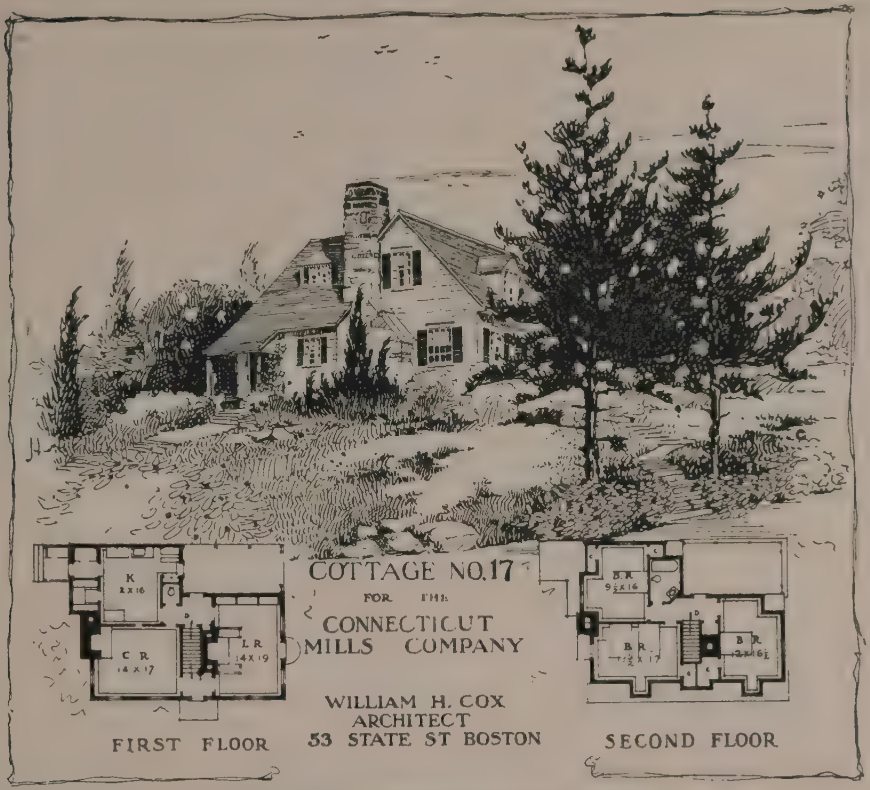
Community Center, Danielson, Conn.
William H. Cox, Architect

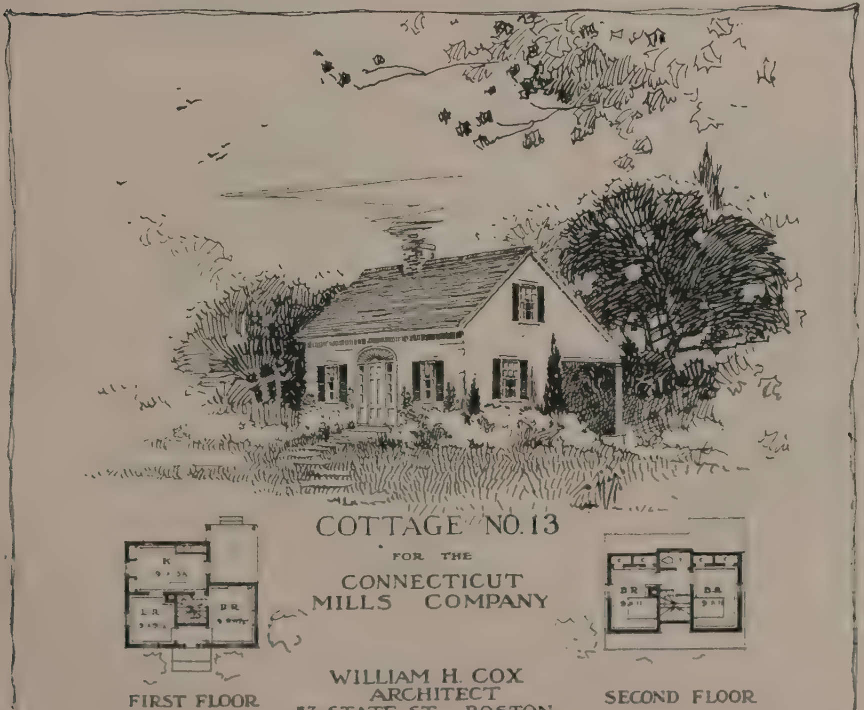
munity among the workers. This has been accomplished by constructing houses neither the rental nor the cost of which is prohibitive; which could be made attractive individual homes, and still preserve a harmonious whole. The development contemplates a unity group, which, when complete, will include apartments, a school, churches, a recreation center, stores, shops and theaters. There is ample space surrounding the houses for the development of gardens.

The center of the community group is the "Connecticut Gables" (see plans and perspective). This apartment house will house

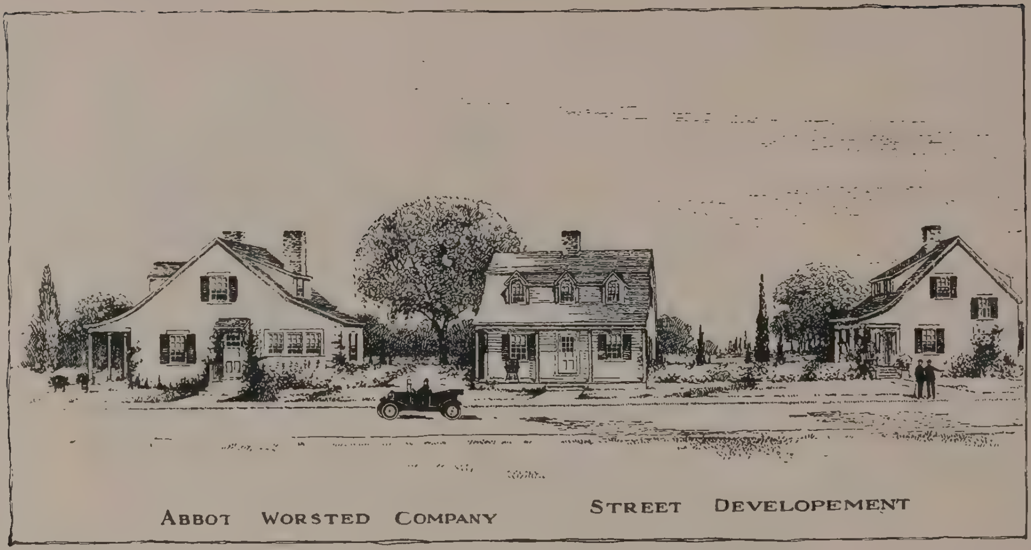


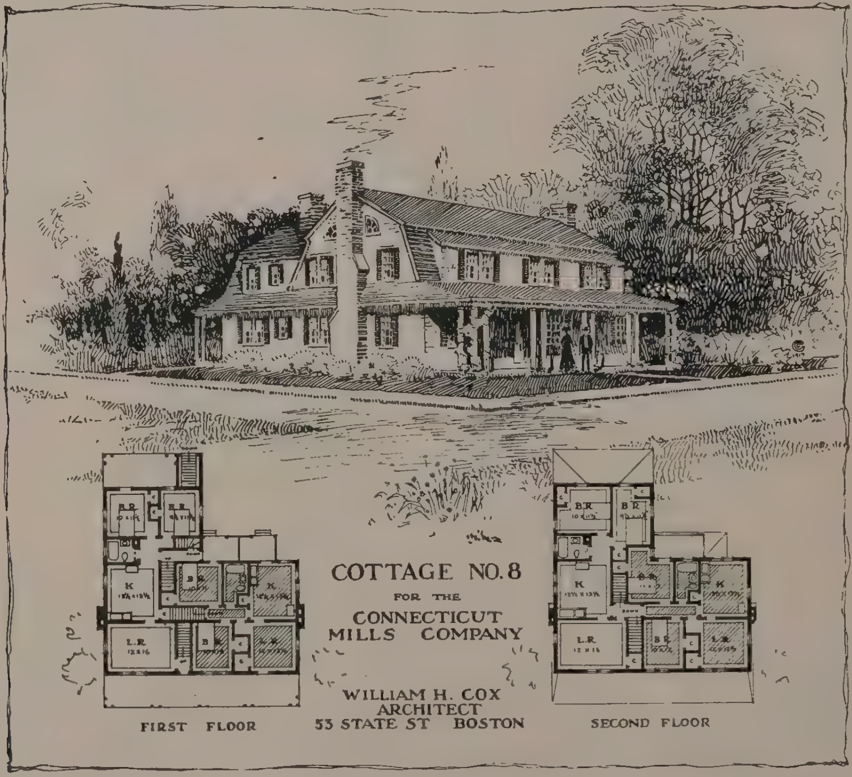
Plot Plans of Housing Developments
W. H. Cox, Architect





Cottage Types, Danielson, Conn.





Cottage Types, Danielson, Conn.

thirteen families and provides also adequate club and assembly rooms for the entire community. The walls of the assembly room are paneled with heavy hand-hewn ceiling beams, and at one end of the room is a large, attractive fireplace. In the basement are general laundries for tenants. These laundries are large, light and airy and are equipped with washing machines and dryers. A central heating plant supplies the heat for the entire building.

On the property there is a natural pond with rugged slopes, upon which it is planned to build one- and two-family houses. The cottage for the welfare worker contains, beside living quarters for herself and assistant, kindergarten rooms and equipment for cooking and domestic science classes.

In general the workmen's cottages range from five to seven rooms per family and the rent from $12.00 to $18.00 a month.

A similar development for the Canadian-Connecticut Cotton Mills is under way at Sherbrooke, Quebec.

The Abbot Worsted Company

Illustrations of the housing development now begun in both Graniteville and Forge Village, Massachusetts, show the character of the work being done there by the Abbot Worsted Company, which is endeavoring to carry out plans for the better living conditions of its workers.

"A GOOD BUSINESS INVESTMENT, NO CHARITY ABOUT IT," SAYS THE COMPANY

The following are extracts from a booklet published by the Connecticut Mills Company, appealing to the workman who is desirous of rearing his family amid proper surroundings.

TAKE YOUR CHOICE

If you and your wife and your babies lived in this unhealthful hovel do you think you would work as cheerfully and well as you could if —

The Connecticut Mills Company in Danielson, Conn., offers you a beautiful, modern home at the same rental you often have to pay for tumble-down shacks in many mill-housing colonies. It offers better incomes.

You all lived in this handsome modern home where you could hold up your head and your children would not be ashamed?

It Is Called "The Village Beautiful"

It offers an opportunity for its operatives not only to work FOR the company, but WITH it!

It is unjust to the workman to ask any sort of rent for such places or to expect him to live amid such surroundings, so the Connecticut Mills organized companies in some of the towns where their manufacturing plants are located to build beautiful homes.

Danielson, Conn., is a clean little New England town of 3,500 inhabitants, with pure air, pure water, country surroundings, and famous for its great cotton mills, paved streets, modern water and electric service, and prosperous banks.

Our investigations and experiments have proved that mill operatives housed in handsome, up-to-date homes do much better work than those who live in squalid, disgraceful little hovels. We call this plan

The Village Beautiful

The homes of mill operatives in most factory towns are like these:

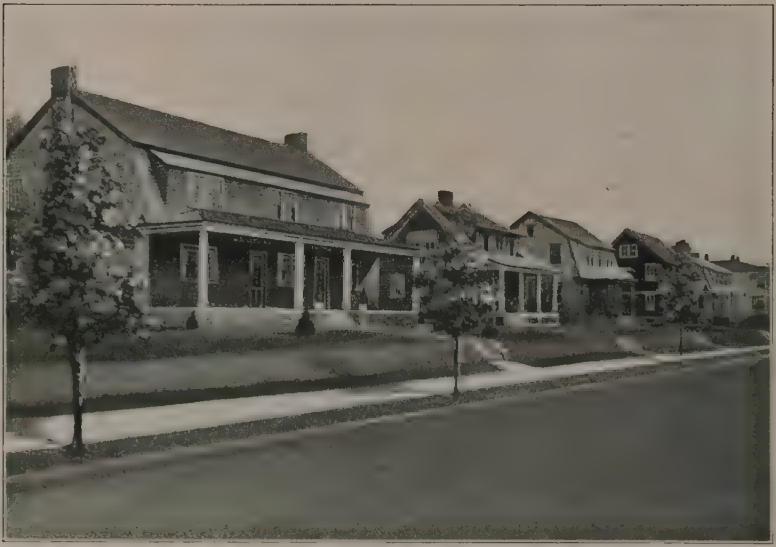
You Mr. Workman

know that in most of the factory towns the employees are for the most part forced to live in squalid surroundings, down in narrow dirty little streets in shacks. Such places are known as "Mill Alley," "The Flats," "The Dump," and similar unpleasant terms.

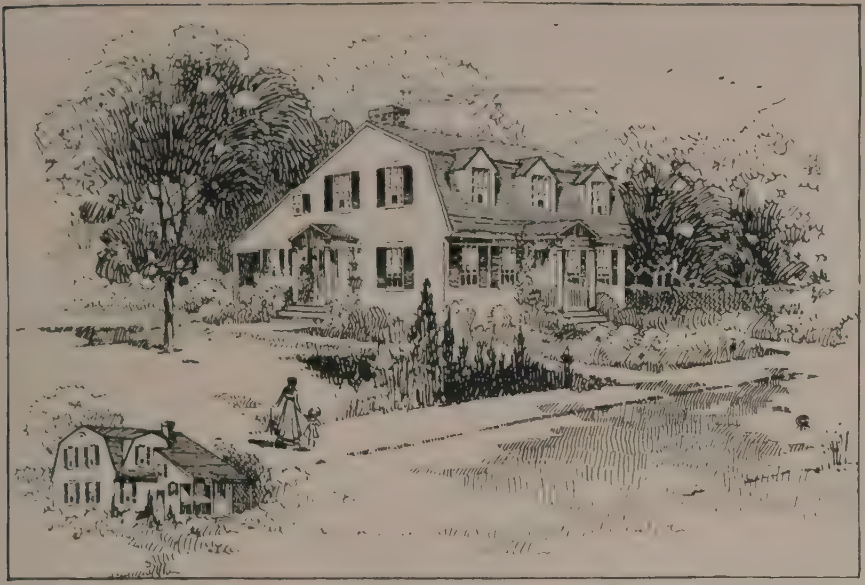
Your child at school may be asked by others, "Where do you live?"

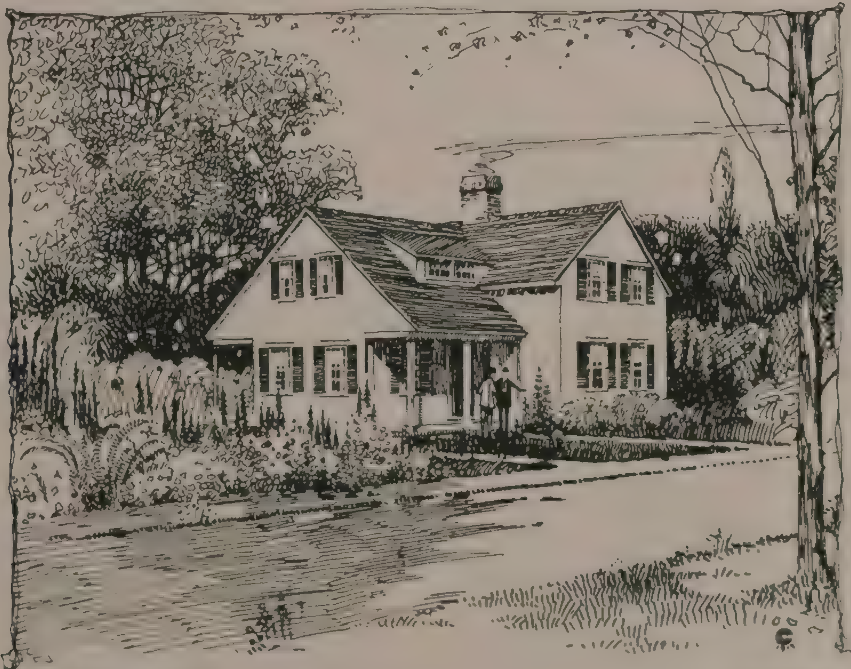
And when your child tells, the other youngsters turn up their would-be aristocratic little noses and say, "Oh," in a tone that implies that your child is not one of them. You probably know how this is. Your children are unhappy, they are made to feel that they are not the equals of the town children. You know that your youngsters are as good as any other youngsters that ever stubbed out the toe of a new shoe, but circumstances have made it impossible for you to give them the homes they would like, and should have.

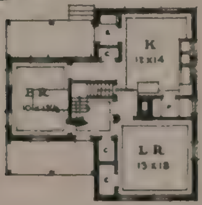
Put your family in a modern home in a restricted residential park, the most attractive part of the whole town, and they feel that they are somebody — they learn that they are, in fact, the equals of any other youngsters in town. They are proud, you are proud, you do better work, you live happier, you have less sickness and you find that



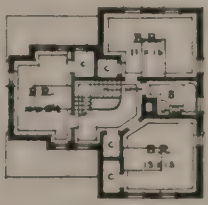
These handsome houses, are occupied by mill operatives in Danielson. They pay from $2.50 to $4.00 a week for these homes, according to size. They may buy them on terms as easy as rent if they wish, at cost, as the mill makes no profit on the houses. Some of the employees already own homes like these. This does not mean superintendents and officials of the mills, but the regular operatives. This view explains better than any words could do just what this plan means for a self-respecting man or woman.







FIRST FLOOR



SECOND FLOOR

House Types, Danielson, Conn.

Studs with Building Paper and Novelty Siding on the Exterior and Wall Board on the Interior

MASONRY:

Excavation to be performed for walls, piers and footings to the depth indicated on the drawings.

Footings of stone concrete 6 inches thick and 12 inches wider than the masonry work above.

Foundations for the excavated portion of the building shall be of concrete walls 8 inches thick on concrete footings 6 inches thick and 20 inches wide. For the unexcavated portion of the building the foundations shall consist of 8 x 8-inch concrete piers with curtain walls between same of expanded metal lath covered on both sides with cement mortar 1 inch thick, total thickness of curtain wall approximately 2 inches.

Chimneys to be of brick lined with terra cotta flue linings.

CARPENTRY:

Framing of the entire building above the foundation shall be done with sound lumber purchasable in the local market. Where not called for to the contrary on the drawings, the size of the lumber shall be as follows:

Floor beams, 2 x 6 inches, 16 inches on center.
Ceiling beams, 2 x 4 inches, 16 inches on center.
Rafters, 2 x 6 inches, 18 inches on center.
Studs, 2 x 4 inches, 16 inches on center.
Sills and Girders built up of 2 x 6-inch pieces to thickness required.

Under floors shall be provided throughout the first and second story and shall be of ⅞-inch ship-lap pine boards.

Exterior wall studs shall be covered on the exterior with building paper and novelty siding of pine, showing about 6 inches to the weather.

Exterior doors shall be 1⅜-inch thick of pine or cypress, panelled and glazed as shown.

Interior doors shall be 1⅜-inch thick of pine or fir. They shall be five cross panel doors of stock design.

Interior and exterior mill work shall be of cypress or pine throughout as the contractor may prefer.

Roofs shall be covered with cedar shingles 16 inches long and exposed 5½ inches to the weather.

Finished floors shall be of oak ⅞-inch thick throughout the master's portion of the first floor and of N. C. pine throughout the remaining portion of the first floor and throughout the entire second floor.

Wall board shall be used against all interior wall surfaces and ceilings throughout the entire first and second story of the building. This wall board shall be in quality similar to Adamant plaster board or other approved manufacture equally good. This board shall be held in place by wooden battens ⅜ x 1½ inches and arranged so as to form panels as shown on the drawings.

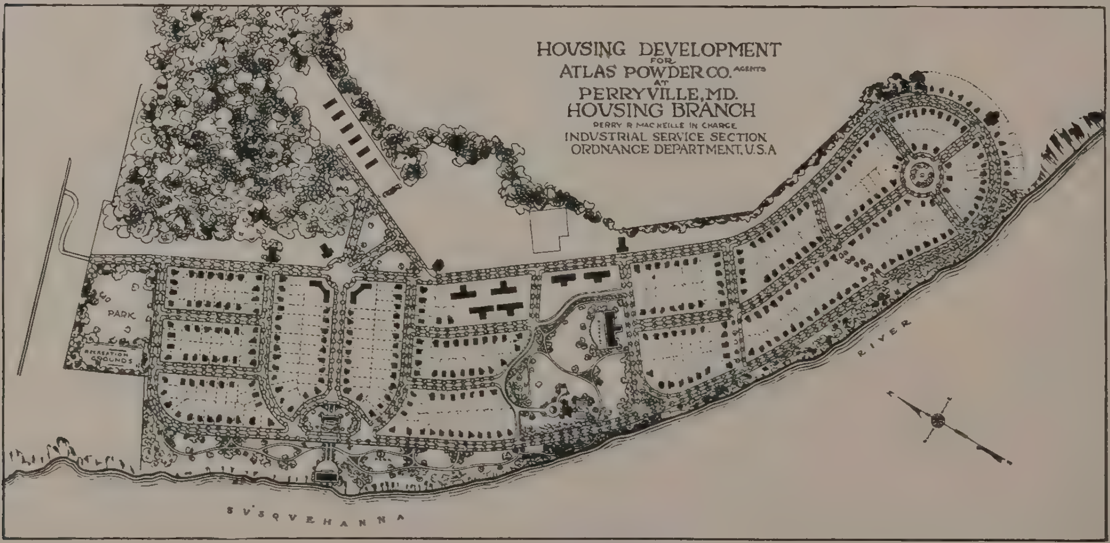
Finished hardware for doors and windows as well as the rough hardware necessary for the framing of the building shall be provided and set by the contractor.

Flashing shall be done with I. X. tin in valleys, around chimneys, over the tops of windows and wherever necessary to make the building weather and water tight. Cap flashing to be used against masonry construction.

Painting shall be done on all exterior woodwork with two coats of lead and oil paint as per sample approved by the architect. Interior finished woodwork throughout the master's portion of the building shall be stained and waxed, and throughout the servants portion of the building it shall be veneered in a natural color. The floors throughout shall be filled and shellaced.

PLUMBING:

The contractor shall provide and install the drainage and water supply pipes throughout the building and



Plot Plan, Perryville, Md.

A Street of Homes, Perryville, Md.

extend same to a point 1 ft. outside of the foundation walls. Cast iron pipes shall be used for the drainage system for sizes 2 inches and over, and standard galvanized iron pipe shall be used throughout for the water supply system and other pipes 2 inches in diameter and under.

He shall run hot and cold water pipes to all fixtures except water closets, where and as shown on the drawings.

The contractor shall install fixtures of the following description and quality:

Kitchen sink to be 20 x 30 inches Standard porcelain enamel roll rim sink with Integral back and fitted with N. P. faucets and trimmings.

Closet combination shall be of Pierce, Butler & Pierce manufacture, known as their "Victor" type with china low down tank and Engle ball cock with Miller oak seat and cover.

Bath tub shall be of porcelain enamel of Standard manufacture 5 feet 0 inches long and fitted with N. P. faucets, waste and overflow and other fittings complete.

Lavatory shall be of Standard manufacture known as their "Beverly" type and fitted with N. P. faucets, traps, chain, plug and strainer complete.

The work shall be installed in accordance with the rules and regulations of the municipal authorities having jurisdiction.

HEATING:

The contractor shall provide and install a hot air heating apparatus with tin cellar and wall pipes, iron registers, and register boxes, wooden cold air duct, a furnace of a manufacture to be approved by the architects.

He shall install the heating system in accordance with the architects' layout of same or a layout approved by them and shall guarantee to heat all portions of the building where registers are placed to 70° in zero weather.

ELECTRIC WIRING:

The contractor shall provide and install electric wiring in "Knob and Tube" work and run same from a point where the electric current enters the building, to connect with all outlets shown on the drawings.

He shall provide fixture lugs where necessary and leave outlets ready for the connection of the fixtures.

He shall provide and set a cut-out switch and fuse box.

He shall install a front door bell with push button, wiring and batteries complete, to ring in the kitchen.

He shall perform the work in accordance with the rules and regulations of the Board of Fire Underwriters having jurisdiction, and he shall obtain and deliver to the architects, their preliminary certificate of approval of his work.

A Commodious Boarding House

The type of boarding house which has been designed for Perryville is a two-story Colonial building having forty-four single rooms, two double rooms, lounging rooms, large front balconies and kitchen and dining room. A feature of this design is the provision of a small two-room and bath apartment directly accessible from the kitchen by a private entrance. This apartment is for the use of the caretaker of the building. Central lavatories have been installed at convenient points. This boarding house can be operated by a small family.

The Club house, which is illustrated herewith, is a building which may be used as a community center. It is equipped on the first floor with a large lounge and periodical room,

HOUSING BY THE COMMONWEALTH OF MASSACHUSETTS

THE INITIAL EXPERIMENT IN GOVERNMENT AID UNDER DIRECTION OF THE MASSACHUSETTS HOMESTEAD COMMISSION

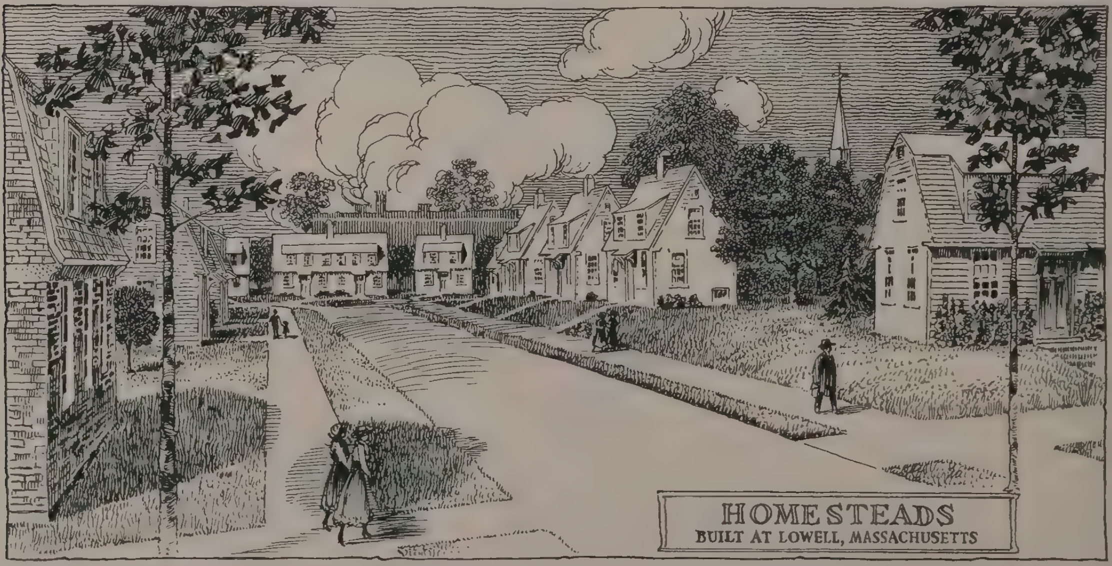
KILHAM AND HOPKINS, *Architects*

By WILLIAM ROGER GREELEY

THE State of Massachusetts in 1917 authorized its Homestead Commission to enter the field of state participation in house building. The Commission proceeded at once to arrange for the purchase of a certain tract of land in Lowell, Mass., within easy walking distance of the business and industrial center and near many of the large mills, and to construct a group of workingmen's cottages, to be sold upon their completion to operatives in the Lowell mills. This was the first governmental attempt in America to demonstrate that workingmen's houses could be built attractively, comfortably, and with fair profit at a reasonable figure.

We have imported millions of men and women to work for us as operatives in mills and as laborers in the fields. We have kept them at work all day, and at night we have paid them off, and sent them away from the mills. They have found themselves in a strange land and without a home. We have left them to themselves and the mercy of sometimes ruthless landlords to find a place in which to live. We have even protected the landlords in criminal practices of extortion and bad housing.

Years ago in Europe people began to feel it a duty to help the operative of small means to find a decent home. It is reported that New Zealand, in an attempt to render such aid to


HOMESTEADS
BUILT AT LOWELL, MASSACHUSETTS

her working classes, has so wonderfully succeeded that she puts $500,000 a year in the public treasury.

The First State to Act

When Massachusetts, although carrying the heavy load of a war budget, gave heed to the recommendation of her Homestead Commission and appropriated $50,000 to help secure homesteads for her less prosperous citizens, the United States became one of the group of nations that could boast some action along the line of this enlightened policy. Massachusetts intends to constitute herself a laboratory for working out the housing problem, and an agent for securing houses for the people; not a paternalistic institution, to build and rent houses for her citizens. In the words of the Commission, "The State should experiment to learn whether or not it is possible to build wholesome dwellings within the means of low paid workers."

Massachusetts had, early in 1917, 258,000 men working for less than $15 per week; of this number 98,000 received less than $10 a week. As the Commission says: "Every consideration of public health, morals, well-being, and progress and stability of civilization demands that the children of these men be brought up in wholesome, healthful homes. Yet almost the only dwellings available to them are the tenements, into which they are flocking in increasing proportions."

Rentals Fixed at 25 Per Cent of Income

In determining the size and character of a house a family can afford, one-quarter of the monthly income is accepted as the standard for monthly rent. The rent is computed as about 9 per cent of the selling value of the homestead. A man earning $25 a week ($108 per month) could pay $27 a month as rent. This amount would secure for him a $3,600 homestead. Land and improvements over and above the cost of the house itself can be had for $400 or $500 in most localities, leaving $3,100 or $3,200 for the cost of the house. This price will permit the construction of a 6-room house, even at the present market prices. There is no baffling problem for the architect here. In fact, he is already solving the housing problem for families receiving $25 or more per week, and solving it well.

The more perplexing part of the problem is the working out of a plan for the man receiving not more than $15 per week. Unfortunately, there are more of this class than of any other.

This part of the housing question has been the one to which the Homestead Commission of Massachusetts has addressed itself in all seriousness and devotion. The results so far are interesting, but the problem is not yet solved.

The Commission undertook to analyze the needs of the family, and arrived at conclusions differing in some respects from the standards developed and tacitly accepted by housing interests. They agreed in the major divisions of the house,— living room, kitchen, three bedrooms, and bath, but differed in the matter of height of rooms, believing 7 feet 8 inches and 7 feet 4 inches to be high enough for first and second floors respectively. There is no virtue in the slight additional amount of air contained in a room 8 feet high when it is sealed up with closed doors and windows. If the windows are open, one is as good as the other. There is much gained in appearance by the lower stud, as it gives increased apparent size owing to the improved proportions of the small rooms. It also justifies itself in the saving cost, and the more attractive exterior lines of the house. Furthermore, every step saved between the first and second floors is a great advantage to the wife of the family.

Housing Standards

The standards agreed upon by housing experts for the one- and two-family house for mill workers, are in part as follows:

Number of rooms normally, four.

Size of rooms: Large bedroom, 10 by 12 feet to 12 by 14 feet; small bedroom, minimum size, 80 square feet, minimum width, 7 feet; parlor, 10 by 12 feet to 12 by 14 feet; dining

The second group of houses consisted of sixteen houses in the northern part of the city. They are of much the same general type as the first group.

Terms On Which Houses Are Sold

A sales plan has been evolved whereby the purchaser — usually a mechanic or man whose financial condition will not permit the purchase of vacant property and the building of a house on the terms usually obtainable — is required to make an initial payment of only $200 on any house of which the sales price is less than $6,000, and to make monthly payments of ¾ of 1 per cent of the total price per month. For instance, a man buys a home for $4,000; he pays $200 cash and makes monthly payments of $30. The monthly payments include the interest on all deferred payments and approximately the rental value of the property. A home selling plan of this kind has proven very attractive and helpful both to the skilled mechanic and to the man who is dependent on a smaller wage.

The purchaser of a home, who buys during construction, has the privilege of selecting paint, interior decorations, etc., and when it can be done without additional expense, minor changes are made in the house to meet his needs and taste.

As a rule the houses being built in Alton are sold before they are completed.

A MODERN INDUSTRIAL HOUSING DEVELOPMENT AT PERRYVILLE, MD.

By C. STANLEY TAYLOR

Project Engineer of Mann and MacNeille, Architects and Construction Engineers

ONE of the interesting housing developments which, though brought about through war pressure, has not been allowed to suffer through ill-advised and hasty planning, is that in connection with the plant of the Atlas Powder Company at Perryville, Md.

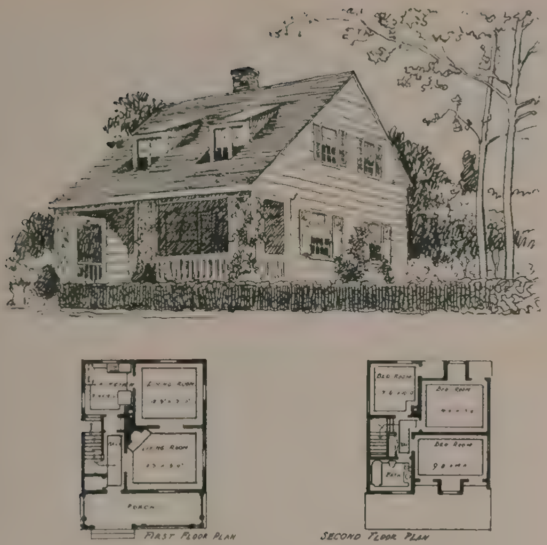
Under the direction of Perry R. MacNeille, in charge of the Housing Branch of the Ordnance Department, the accompanying town plan and building designs were prepared in the office of Mann & MacNeille, New York architects and town planners, and from these plans over 200 houses in the industrial village at Perryville have been completed, as many more being under construction.

The plans were first submitted for approval to Major Sinclair, in charge of Government construction in Perryville. In the construction of the buildings, the sketch plans were submitted to Mr. W. E. Stevens, local architect for the Atlas Powder Company, and working drawings and supervision were carried out by him.

Town Planning Features

The site of the village is especially endowed in the way of natural features, lying as it does on the gently sloping banks of the broad Susquehanna River, approximately forty-five miles west of Philadelphia, and thirty miles northeast of Baltimore. The dark green foliage of an oak forest forms a natural background.

Equally dividing the village is a partially wooded ravine on the edge of which stands an old mansion surrounded by fine old button wood and locust trees, with here and there groups of magnificent boxwoods of a hundred years growth. The manse has been remodeled



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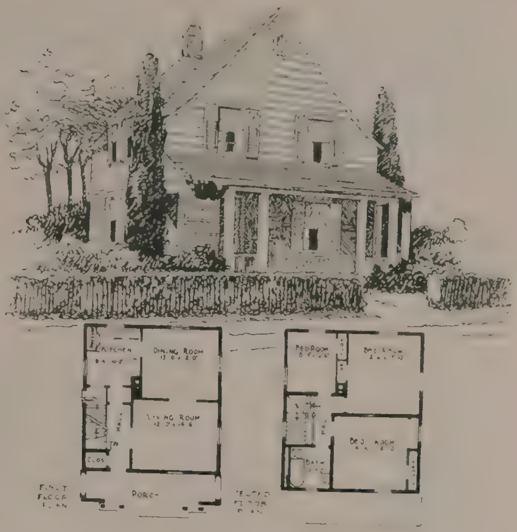

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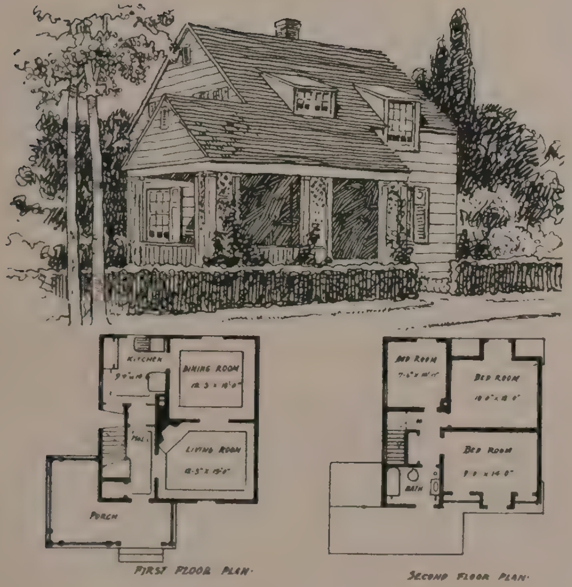

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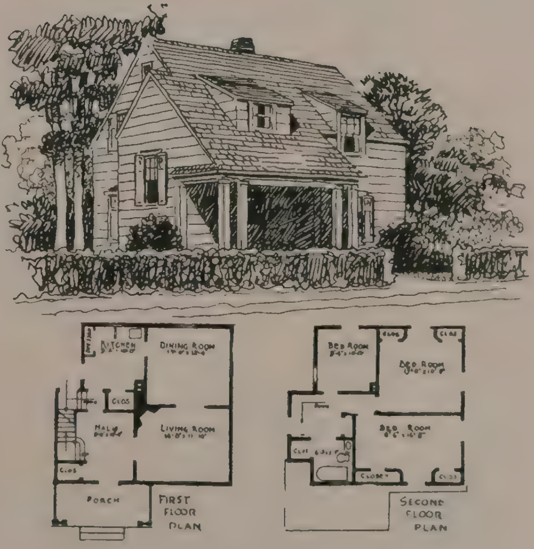
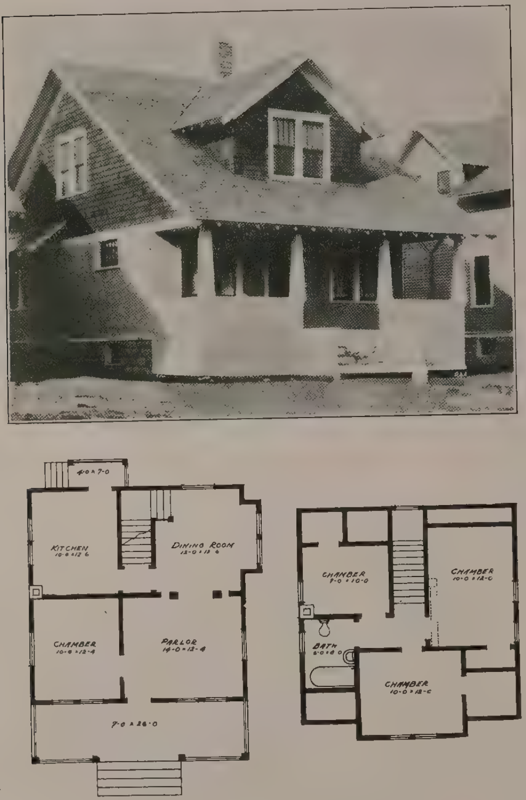


Type D-2

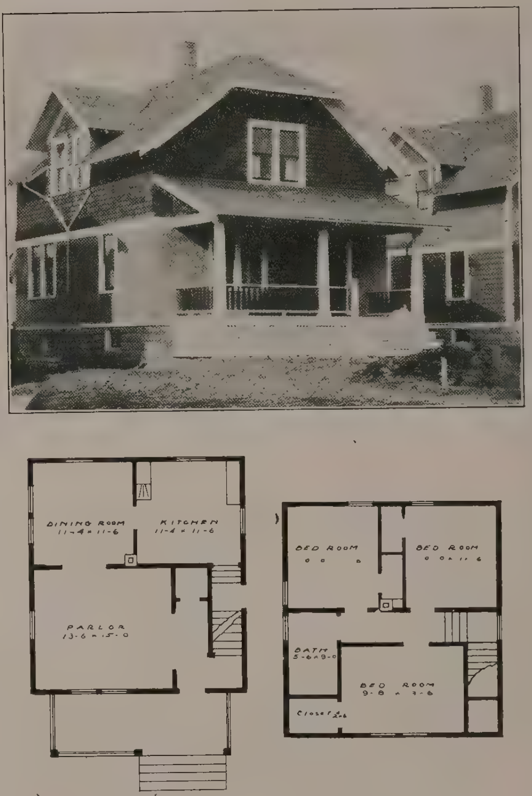
Types of Homes in the Perryville, Md., Housing Development

General View, Kenosha

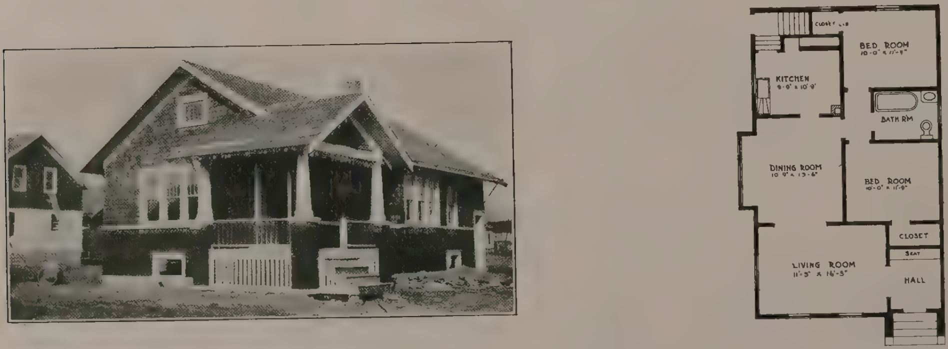
Backs of Nearly Completed Houses



House Type No. 10 and Floor Plans



House Type No. 1 with Floor Plans



House Type No. 11 and Floor Plan

Cottages at Kenosha, Wis.

HOW KENOSHA GRAPPLED WITH ITS HOUSING SHORTAGE

By CONRAD SHEARER

Vice-President, Kenosha Homes Company

KENOSHA, the "Gateway to Wisconsin," is one of the few cities of the United States which has taken hold of the housing problem in a systematic manner. This city is noted as a live industrial center. Its manufacturing plants produce a great variety of articles, including automobiles, beds, leather, brass goods, tables, wire rope, auto lamps, hosiery, underwear, wagons etc. Situated about fifty miles from Chicago and thirty from the metropolis of Wisconsin, it has marked advantages along the lines of transportation and labor markets. Kenosha's population has increased about fifty per cent during the past ten years, and is now estimated at 35,000. In the same space of time, the number of factory operatives has more than doubled and the weekly payroll increased from $100,000 to $300,000.

In October, 1907, the manufacturers of Kenosha met and formed the association which composes the nucleus of the housing history. The principles of this organization declared for closer co-operation upon all questions affecting the interests of the members. It has secured better working conditions, improved health and sanitation, obtained machinery safeguards against accidents, and has advanced wages. All these advantages have proved so attractive to the applicant for employment that labor has flocked to the city from all sections of the country. Seven years ago, the need of additional houses to care for the working population became evident to all manufacturers. In March, 1911, President W. L. Yule in his annual address to the association, said:

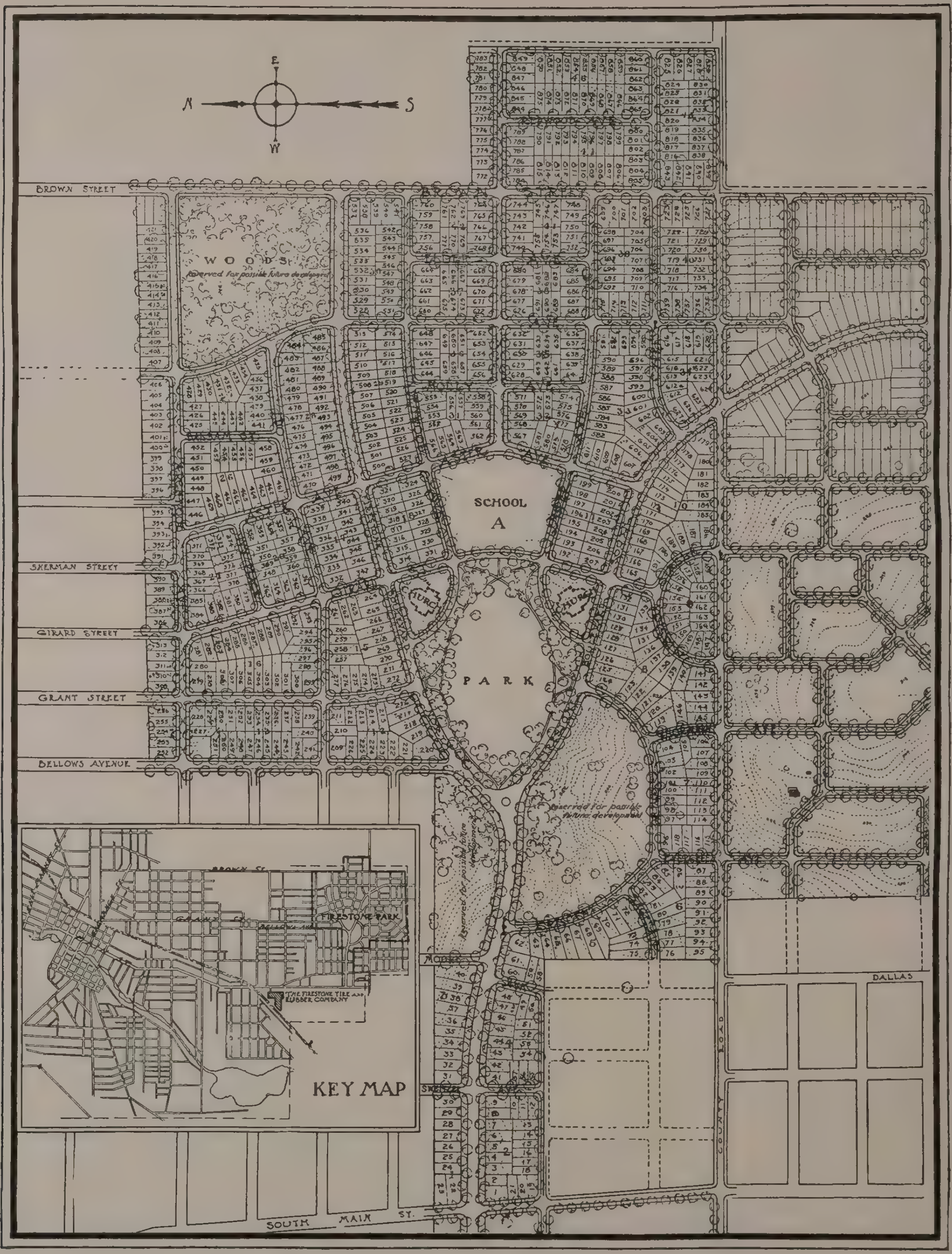
> "Our great need at the present time is not more factories. We require more homes for our wage earners now in the city and for those coming to us from other cities. The erection of more houses and the substitution of married for single men is the sure and better method of building a greater Kenosha."

Manufacturers recognized the truth set forth in President Yule's statement and took steps to interest builders in the proposition. Numerous meetings were held and the subject presented to large contractors, but, without capital, none was willing to take up the work. With this temporary failure, the matter lay dormant several years.

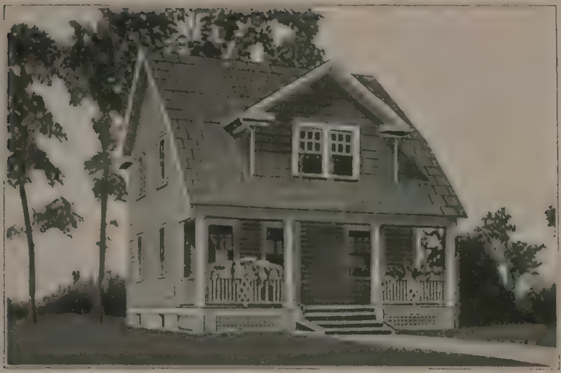
House Shortage Bad for Business

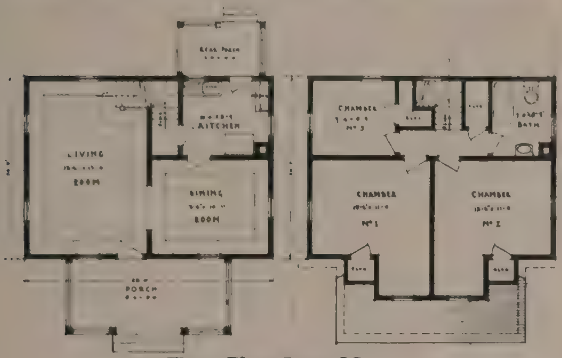
In the spring of 1916, the lack of houses became most evident. Many of the plants were badly in need of skilled help. Mechanics came to the city in large numbers to accept situations. They even started work, but on account of no housing facilities, were obliged to leave. Kenosha lost hundreds of valuable operatives in a few months. The increase in new houses for the preceding year numbered less than 250 while the total gain in employees was nearly 3,000. A meeting of the manufacturers' association was called and it was decided to employ an expert to make a survey of housing conditions. The man selected was Dr. John Nolen, of Cambridge, Mass., who had had wide experience in this class of work.

Dr. Nolen's first step was to send a list of questions to all manufacturers. These included the number of workmen in need of homes, the different nationalities, skilled and unskilled workers, the average wage rate, tracts of land available for house building, methods of securing loans, etc. Each manufacturer furnished such information as he could, and



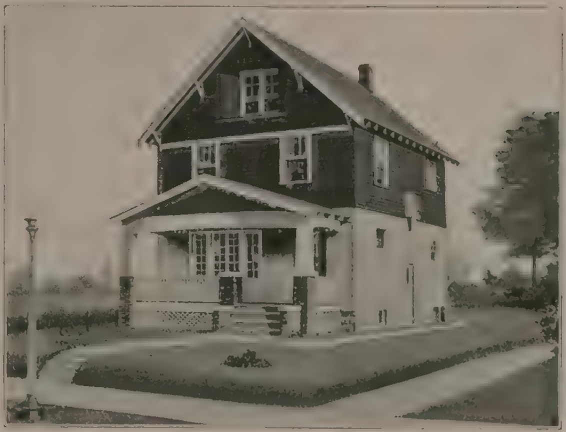
Plot Plan, Firestone Park

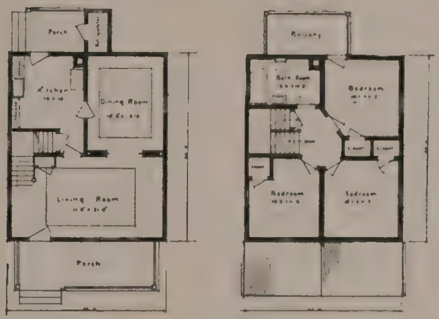




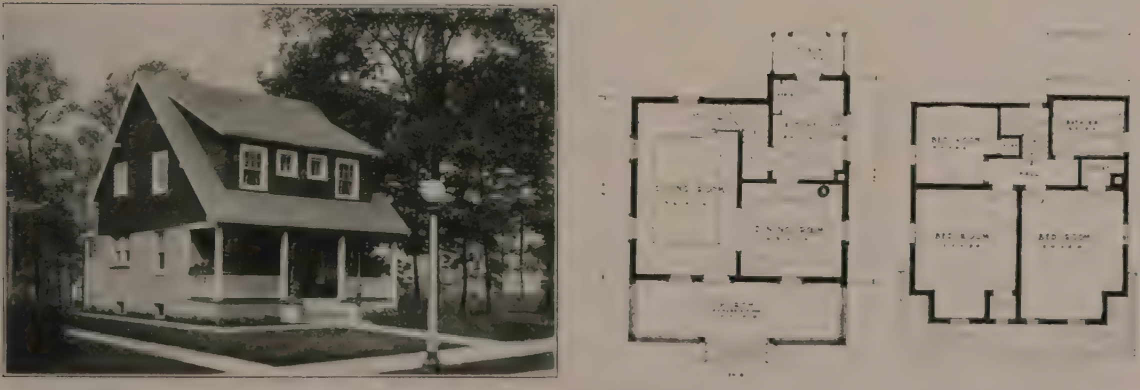
Floor Plans Type CC

Type CC House





Type E House



Type CF House and Floor Plan

House Types at Firestone Park, Akron, Ohio and cold water, gas for cooking purposes, heating furnace, and electric light fixtures. Houses are set back 20 to 35 feet from the street line and shade trees, shrubs and lawns planted in front of each house. One subdivision contains a small park in the center planted with shrubs and ornamental trees. The general plan of the group of houses gives a very pleasing appearance. Houses, instead of being constructed from one plan, are dissimilar and arranged in such a way that no two of like appearance are together.

Some mention might be made of advertising in order to sell the houses. But, as previously stated, the houses sell themselves, thus doing away with the need of any special publicity. As a rule some man at each factory represents the Homes Company and receives applications from employees who are seeking homes. His duties are to get in touch with prospective purchasers, explain to them the advantages offered by the Kenosha Homes Company, and assist in such other ways as he may be able, in connecting the home seeker with the home.

Manufacturers of Kenosha will agree that the housing project has proved valuable especially from the standpoint of experience. Naturally with an undertaking of such magnitude, some mistakes have been made. But in view of the good accomplished, the errors can be overlooked. Kenosha Homes Company intends to continue building homes for Kenosha's working population. The experiment has taught these things:

Certain types of houses are acceptable while others are not.

Factory workers wish to own homes.

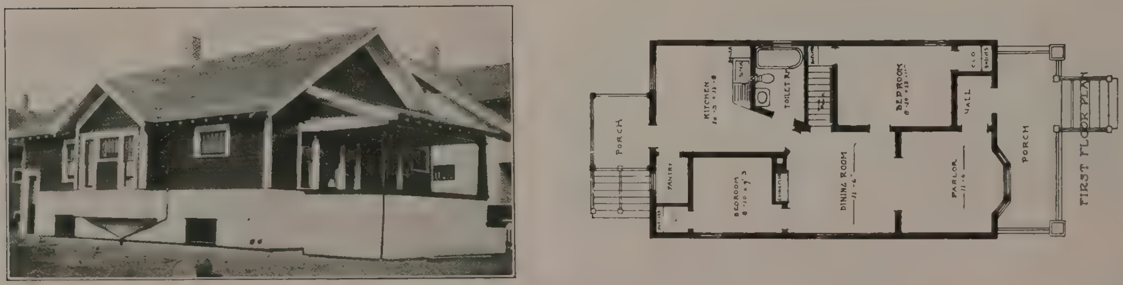
Material and workmanship should be of the best.

Taste and beauty of surroundings are very important.

Location is one of the chief factors.

Briefly summing up the results of the housing experiment in Kenosha, we can note numerous benefits. Out of the movement came a building ordinance which the city should have had many years ago. With the ordinance came a plumbing and building inspector, two very necessary officials. Our workmen have been encouraged in their ambition to become owners of homes, thus fostering thrift through the saving habit. Contrary to predictions at the start that the action of the manufacturers would retard building, it had the opposite effect.

Above all else the movement is recognized by municipal authorities as one of Kenosha's big forward steps in the interests of health and sanitation. Few Departments of Health have not been called to cope with disease caused by poor housing. A large percentage of the crime of our cities can be traced to crowded tenements. Therefore, if by constructing houses along right lines we cultivate higher ideals, improve health and sanitation, save the growing boys and girls for honorable and useful lives, and in short, make the home a haven of rest, health and happiness, then the value of such movements as that of Bridgeport, Waterbury, Akron and others, as well as Kenosha, can not be overestimated.



House Type No. 7, Kenosha

ALTON, ILLINOIS

AN INDUSTRIAL TOWN WHICH IS SOLVING ITS HOUSING PROBLEM THROUGH CITIZENS' CO-OPERATION WITH A BUILDING SYNDICATE

PRIOR to January 1, 1918, there existed in Alton a housing shortage, then estimated to be approximately 600 homes. Several of the larger manufacturing plants complained to the mayor that this shortage was seriously affecting the output of their concerns, and that unless the condition was relieved they would be compelled to establish branches to take care of part of their activities in other locations. The Board of Trade at that time had inquiries from a number of manufacturing enterprises which desired to locate in Alton. The manager of the Board of Trade was unable to satisfy them that they could operate successfully here, owing to shortage of houses.

A committee of the manufacturers and business men extended an invitation to the House of Hancock, a building syndicate with head offices in Chicago, to come to Alton, make an investigation of the housing conditions, and assist in bringing about a solution. Representatives of this organization came to Alton, met with a committee of the manufacturers and business men, and offered to establish a unit of their organization in Alton, provided they were assured of sufficient local support to justify them in so doing. A larger meeting was then called, and approximately $70,000 pledged as an initial fund to carry out the building campaign.

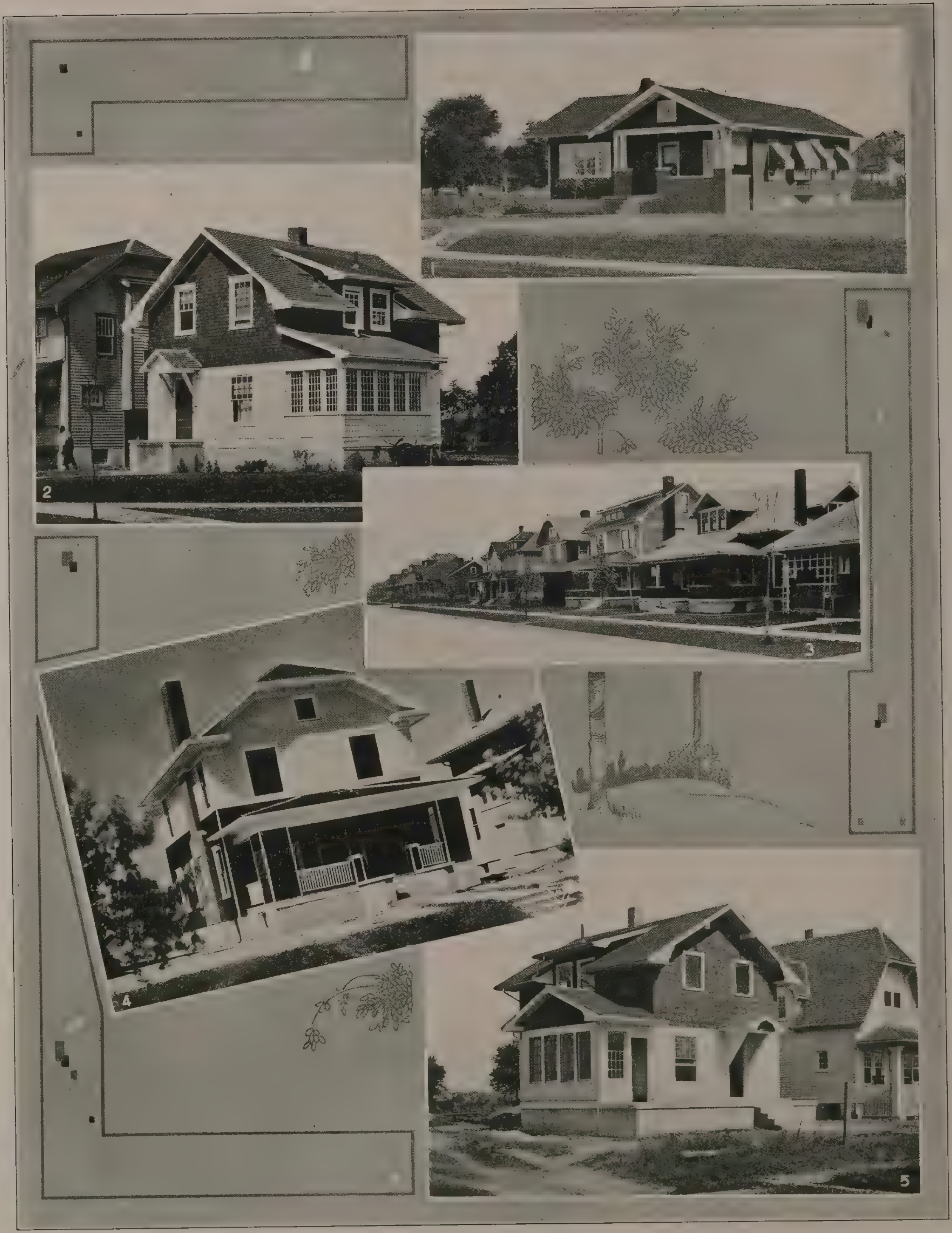
Financial Arrangements

The local support asked for consisted of subscriptions to the trust certificates of the House of Hancock.

The business of this organization is conducted by a board of five trustees, who serves without pay. The funds required to carry on a building program are provided through the sale of the 6 per cent preferred trust certificates of the House of Hancock. These certificates are purchased by the manufacturers, business men and other public-spirited citizens in the community where the operation is being carried on, and by investors both in the community and in the various other locations where agencies for their sale have been established. The certificates are also purchased by wage-earners on the installment plan. The shares of the House of Hancock are in denominations of one hundred dollars and may be purchased on terms as low as five dollars cash and five dollars per month per share, 6 per cent interest being allowed on the payments made.

Raymond G. Hancock and Company and the trustees of the House of Hancock have entered into a general contract for the construction and sale of all the houses required by the Syndicate. In order to bring properties within the terms of the contract it is only necessary for the trustees to purchase the vacant property and order the houses built according to plans and specifications then furnished or designated. This contract is based on an equal division between Raymond G. Hancock and Company and the investors, of the profits of the operation remaining after the payment to the investors of interest at the rate of 6 per cent for the period of each investment.

In order to carry out this general plan of profit sharing, the trustees of the House of Hancock, when they issue preferred trust certificates, also issue profit-sharing certificates calling for the same number of shares; one-half to Raymond G. Hancock and Company and



House Types at Middletown, Ohio

Homes on Sutphen Avenue, Middletown, Ohio

MIDDLETOWN, OHIO

MANUFACTURERS' FINANCIAL ASSISTANCE TO WORKMEN MAKES POSSIBLE HOME-BUILDING ON EASY TERMS—CITY AUTHORITIES CO-OPERATE

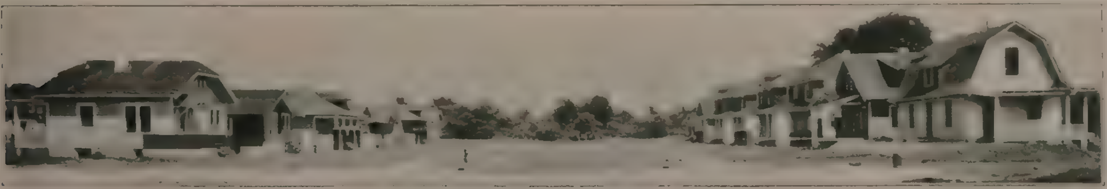
WITH the city's population increasing at the rate of ten per cent a year, manufacturers of Middletown have been keenly interested in the housing developments there, and have facilitated the financing of new home construction by money deposited with the building and loan associations, and by giving material and moral support to workmen desirous of owning their own homes.

The actual development has been effected by real estate men and realty corporations independent of the industrial plants and through "Own Your Home" campaigns and the inducement of easy terms of purchase. Middletown has a high percentage of home-owners.

The Single Home Unit the Idea

Construction has followed the idea of the single home unit, and while types vary from the four-room cottage to the ten-room mansion, each has its setting in a comfortably expansive yard, and flats and apartment houses have been neglected in the preference for a real individual home.

The city authorities have co-operated in the extension of service facilities. On application of a majority of frontage owners along a new street, sewers, sidewalks, curbs and service connections will be extended, paid for by the city, and bonds issued for the required costs. The total costs are then apportioned to the frontage of the abutting lots, and assessments

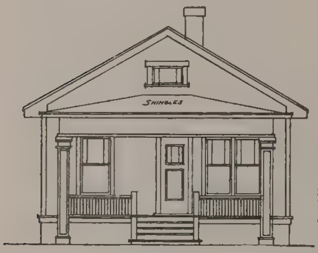


Illinois Avenue, Middletown, Ohio

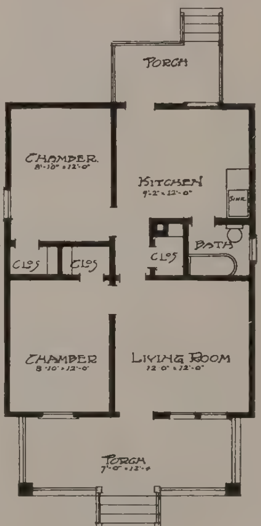
one-half to the investor. These profit participating shares have no value, bear no interest and earn no dividend until the preferred certificates of the same series have been retired with interest, after which they participate prorata in the remaining profit. Each investment in the preferred trust certificates is for a period of five years.

"Overhead" Carried by Building Firm

The building firm in addition to the actual construction of the houses furnishes the syndicate with offices, branch offices, telephone service, stenographers, bookkeepers, postage and other incidental expenses; superintends the sale of the houses, collects the initial and monthly installments, and maintains general oversight of the properties during the period of construction and the time required by the purchaser to pay for the property. These items of overhead expense not being divisible between the individual properties, the building firm is paid the actual cost of the properties, not including these items, and, to cover these items, up to 10 per cent of the actual cost of the properties is paid to it, provided, however, that in no case is more than $300 charged against any individual property under this head.



.FRONT ELEVATION.



.FIRST FLOOR.

Type K-2 Cottage at Alton, Ill.

The title to all the property in which any money of the syndicate is invested is taken and held by the trustees for the benefit of the certificate holders in proportion to their holdings. The title to the property is not transferred to the purchaser until all of the syndicate's investment has been repaid. When loans are placed on the properties, the title is temporarily transferred to a third person who executes all of the instruments necessary to perfect the loan and immediately retransfers the title to the trustees.

This is done to protect the general assets of the syndicate against deficiency decrees in case of foreclosure proceedings as to individual properties during the life of the loan.

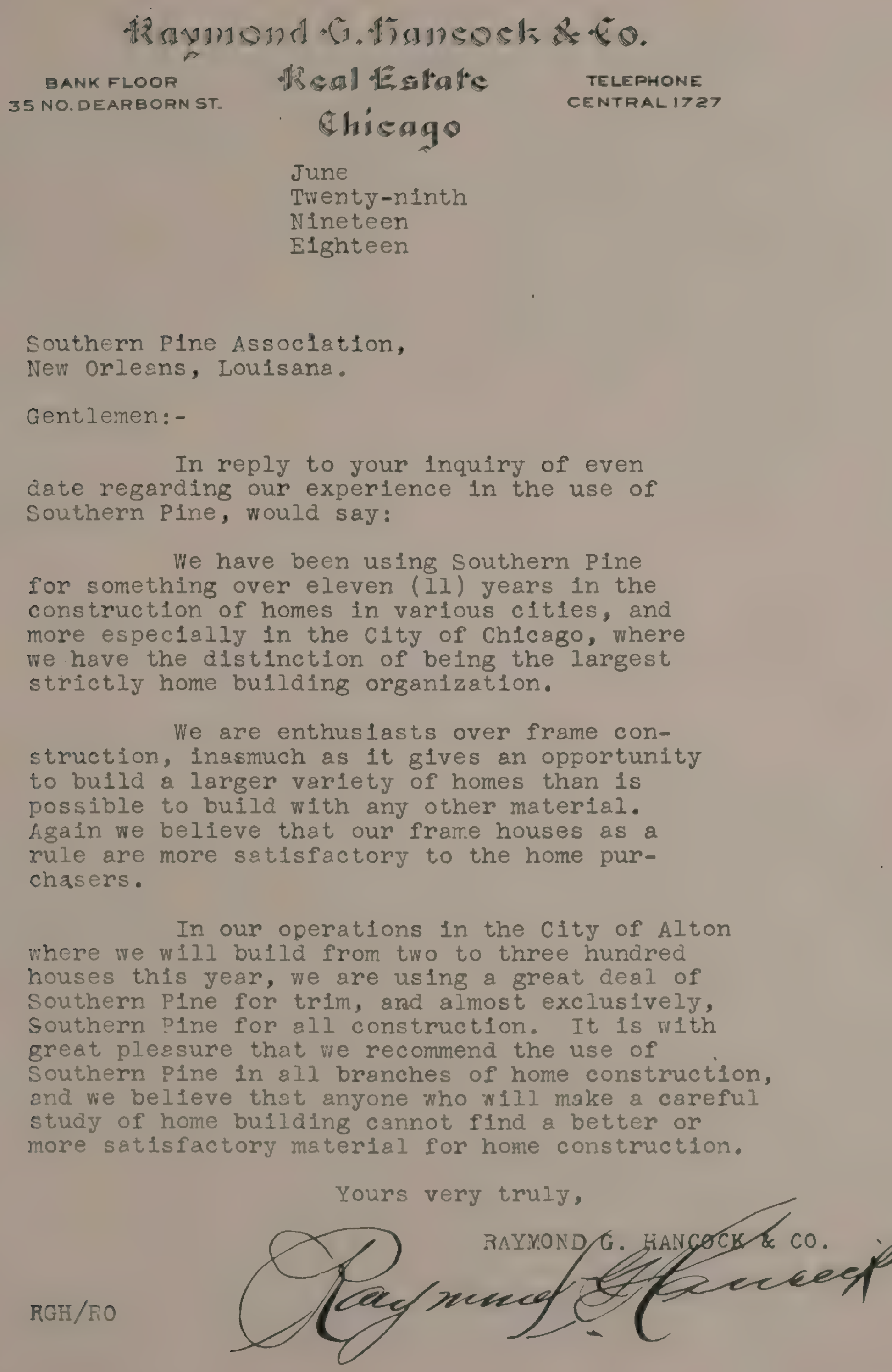
Hancock and Company purchase all material and contract for all labor in their own names, so that the only liability of the syndicate is to the building firm and in the contract the building firm expressly releases all the certificate holders from personal liability by reason of the contract and agrees to look solely to assets of the syndicate for its compensation.

This is done for the protection of the certificate holders.

Housing Survey Made of District

A business arrangement along the above lines having been entered into with the citizen subscribers of Alton, the building syndicate at once made a careful survey of the district, taking into account the number of industries, their capital investment, annual output, number of skilled and unskilled workers at present employed, and the number required to bring the plants up to the required standard; also a survey of the housing accommodations and general living conditions among the workmen.

The first group of houses constructed consisted of fifteen houses in the Woodlawn subdivision. These lots, at the time of purchase by the building syndicate, did not have water or sewer connections or sidewalks. These improvements were put in before and during construction, and today the houses are completed and occupied, with all the improvements and conveniences of modern city apartments and the added advantage of being individual homes.



Raymond G. Hancock & Co.
Real Estate
Chicago

BANK FLOOR
35 NO. DEARBORN ST.

TELEPHONE
CENTRAL 1727

June
Twenty-ninth
Nineteen
Eighteen

Southern Pine Association,
New Orleans, Louisana.

Gentlemen:-

In reply to your inquiry of even date regarding our experience in the use of Southern Pine, would say:

We have been using Southern Pine for something over eleven (11) years in the construction of homes in various cities, and more especially in the City of Chicago, where we have the distinction of being the largest strictly home building organization.

We are enthusiasts over frame construction, inasmuch as it gives an opportunity to build a larger variety of homes than is possible to build with any other material. Again we believe that our frame houses as a rule are more satisfactory to the home purchasers.

In our operations in the City of Alton where we will build from two to three hundred houses this year, we are using a great deal of Southern Pine for trim, and almost exclusively, Southern Pine for all construction. It is with great pleasure that we recommend the use of Southern Pine in all branches of home construction, and we believe that anyone who will make a careful study of home building cannot find a better or more satisfactory material for home construction.

Yours very truly,

RAYMOND G. HANCOCK & CO.

Raymond G. Hancock

RGH/RO

The second group of houses consisted of sixteen houses in the northern part of the city. They are of much the same general type as the first group.

Terms On Which Houses Are Sold

A sales plan has been evolved whereby the purchaser — usually a mechanic or man whose financial condition will not permit the purchase of vacant property and the building of a house on the terms usually obtainable — is required to make an initial payment of only $200 on any house of which the sales price is less than $6,000, and to make monthly payments of ¾ of 1 per cent of the total price per month. For instance, a man buys a home for $4,000; he pays $200 cash and makes monthly payments of $30. The monthly payments include the interest on all deferred payments and approximately the rental value of the property. A home selling plan of this kind has proven very attractive and helpful both to the skilled mechanic and to the man who is dependent on a smaller wage.

The purchaser of a home, who buys during construction, has the privilege of selecting paint, interior decorations, etc., and when it can be done without additional expense, minor changes are made in the house to meet his needs and taste.

As a rule the houses being built in Alton are sold before they are completed.

A MODERN INDUSTRIAL HOUSING DEVELOPMENT AT PERRYVILLE, MD.

By C. STANLEY TAYLOR

Project Engineer of Mann and MacNeille, Architects and Construction Engineers

ONE of the interesting housing developments which, though brought about through war pressure, has not been allowed to suffer through ill-advised and hasty planning, is that in connection with the plant of the Atlas Powder Company at Perryville, Md.

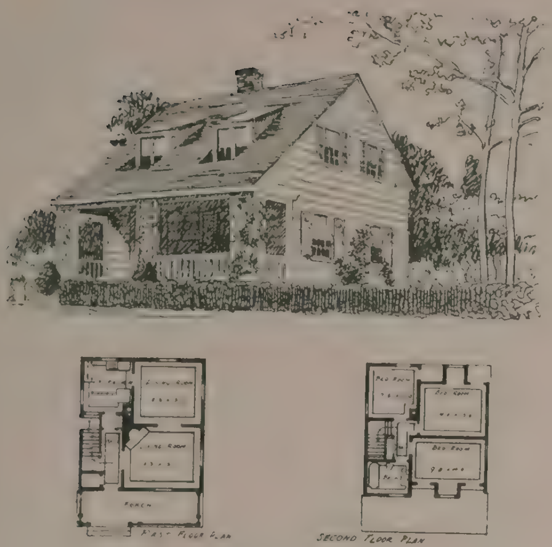
Under the direction of Perry R. MacNeille, in charge of the Housing Branch of the Ordnance Department, the accompanying town plan and building designs were prepared in the office of Mann & MacNeille, New York architects and town planners, and from these plans over 200 houses in the industrial village at Perryville have been completed, as many more being under construction.

The plans were first submitted for approval to Major Sinclair, in charge of Government construction in Perryville. In the construction of the buildings, the sketch plans were submitted to Mr. W. E. Stevens, local architect for the Atlas Powder Company, and working drawings and supervision were carried out by him.

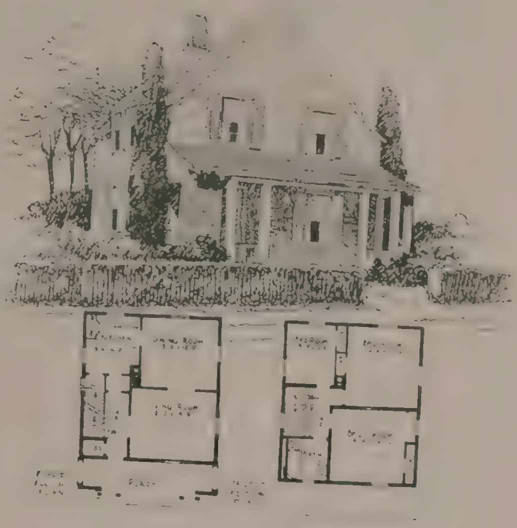
Town Planning Features

The site of the village is especially endowed in the way of natural features, lying as it does on the gently sloping banks of the broad Susquehanna River, approximately forty-five miles west of Philadelphia, and thirty miles northeast of Baltimore. The dark green foliage of an oak forest forms a natural background.

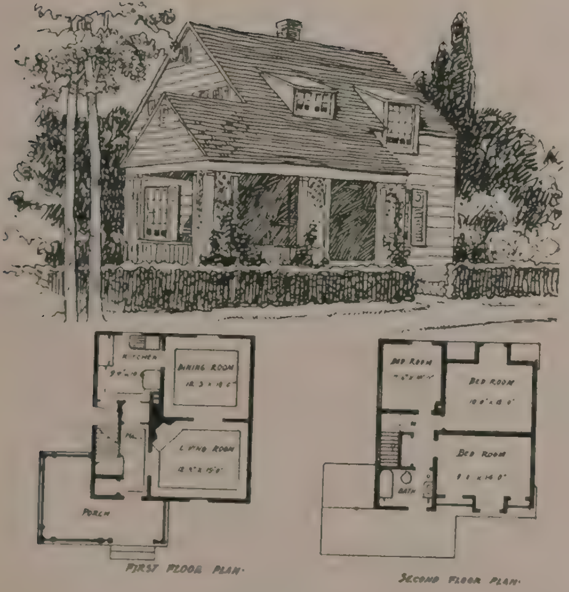
Equally dividing the village is a partially wooded ravine on the edge of which stands an old mansion surrounded by fine old button wood and locust trees, with here and there groups of magnificent boxwoods of a hundred years growth. The manse has been remodeled



Type D-4



Type D-1



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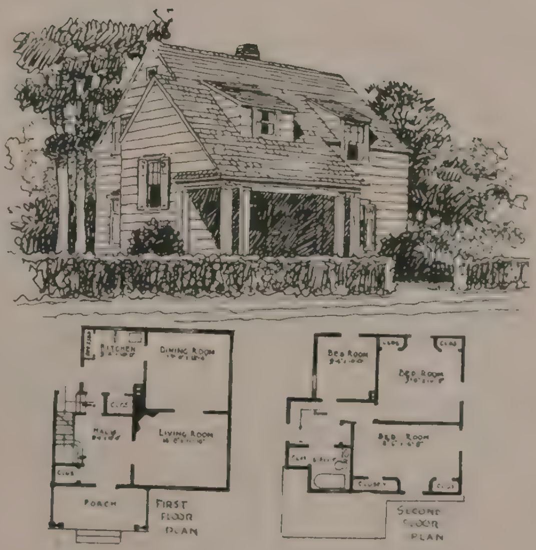


Type D-2

Types of Homes in the Perryville, Md., Housing Development

into a house for the superintendent, and the grounds kept intact.

As this section is unsuitable for building purposes, it has been laid out as a park and grounds for the public school, which has a commanding site overlooking the village and river.

Other recreation grounds have been designed for the west end of the village, suitably planted with shrubs and trees, and are large enough for public gatherings and activities.

Along the top of the bluff, between the road and river, walks have been laid out leading to and from the community building in the center. The existing foliage has been augmented by the planting of additional shrubs and trees. Suitable shade trees, planted forty feet apart, have been designed for the streets.

The principal aim of the planting and parking scheme has been to tie together the natural existing landscape units by connecting walks and planting in a way to form unity of design with the welfare building at the center.

In the general plan of the streets an effort was made to lay out as many streets at right angles with the river as the conformity of the land would allow, thus allowing vistas from the house down to the water, while the avenues run parallel to the mill, curving as the contour of the land demands.

Houses of Frame and Brick Veneer

Most of the buildings in this village are of frame construction, a few houses being of brick veneer, having white pine for all exterior mill work, and interior trim also of pine and white wood. The exterior walls are covered with novelty siding of pine, and roofing of cedar shingles. The buildings which are being constructed are as follows:

Approximately 400 houses of from 4 to 7 rooms, with all modern improvements including fireplaces, large verandas, special exterior entrances leading to the kitchen and the cellar.

6 Boarding houses of type shown in accompanying illustration B-4.

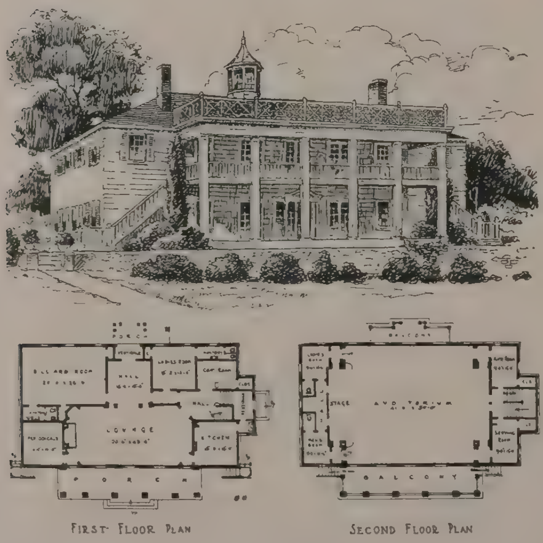
1 Club House shown in accompanying illustration.

1 School — illustration N-1.

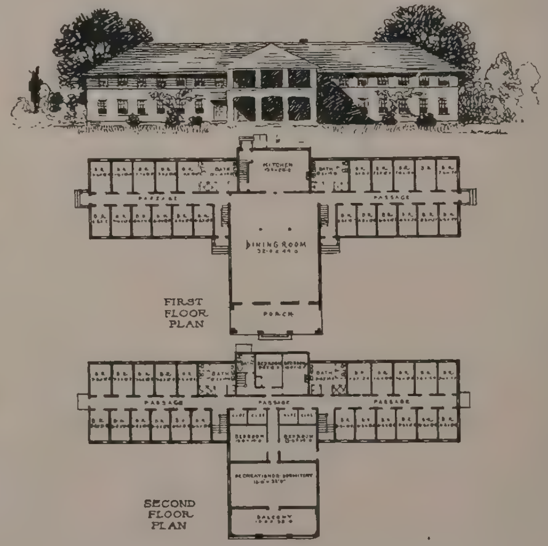
Description of Individual Buildings

The individual dwelling houses as shown in illustrations D-1, D-2, D-3, D-4, D-5, and D-6 are of modern colonial type, each house being placed on a sufficiently large tract of ground to allow space for planting and gardening.

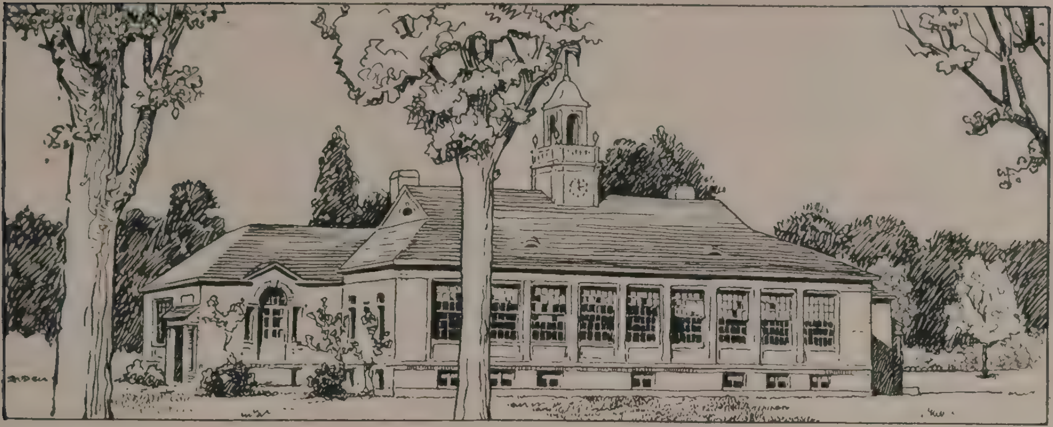
Following is an outline specification of a typical house at Perryville:

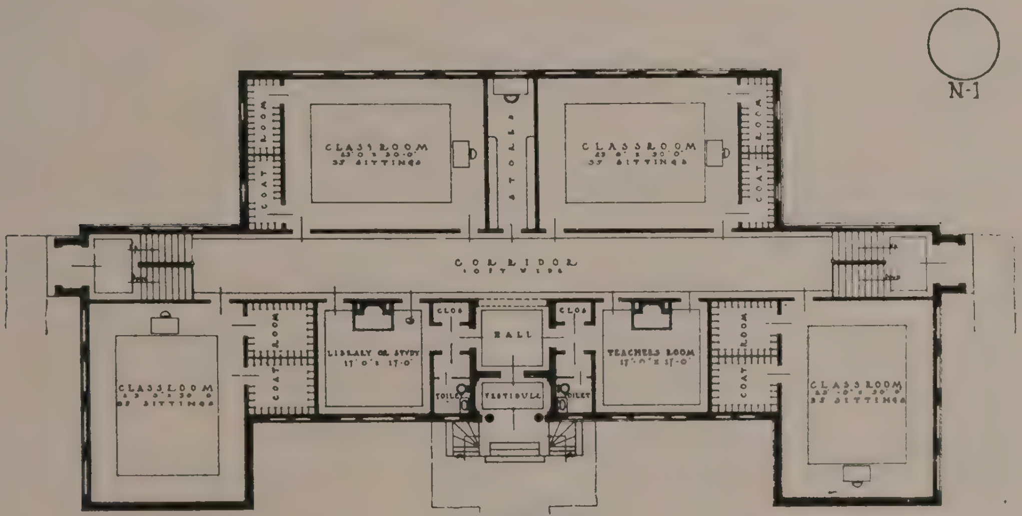


Club House at Perryville, Md.

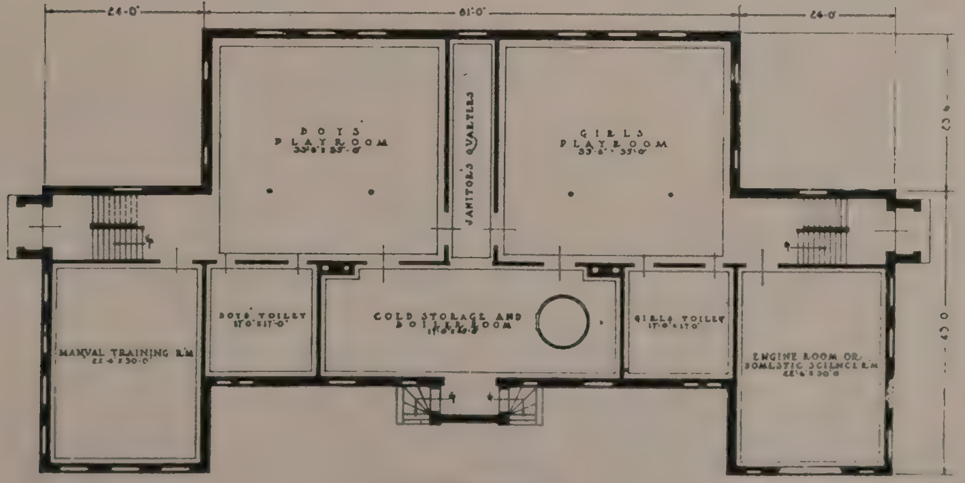


Boarding House and Floor Plans, Perryville





FIRST FLOOR PLAN



BASEMENT FLOOR PLAN

School Building, Perryville, Md.

Studs with Building Paper and Novelty Siding on the Exterior and Wall Board on the Interior

MASONRY:

Excavation to be performed for walls, piers and footings to the depth indicated on the drawings.

Footings of stone concrete 6 inches thick and 12 inches wider than the masonry work above.

Foundations for the excavated portion of the building shall be of concrete walls 8 inches thick on concrete footings 6 inches thick and 20 inches wide. For the unexcavated portion of the building the foundations shall consist of 8 x 8-inch concrete piers with curtain walls between same of expanded metal lath covered on both sides with cement mortar 1 inch thick, total thickness of curtain wall approximately 2 inches.

Chimneys to be of brick lined with terra cotta flue linings.

CARPENTRY:

Framing of the entire building above the foundation shall be done with sound lumber purchasable in the local market. Where not called for to the contrary on the drawings, the size of the lumber shall be as follows:

Floor beams, 2 x 6 inches, 16 inches on center.

Ceiling beams, 2 x 4 inches, 16 inches on center.

Rafters, 2 x 6 inches, 18 inches on center.

Studs, 2 x 4 inches, 16 inches on center.

Sills and Girders built up of 2 x 6-inch pieces to thickness required.

Under floors shall be provided throughout the first and second story and shall be of ⅞-inch ship-lap pine boards.

Exterior wall studs shall be covered on the exterior with building paper and novelty siding of pine, showing about 6 inches to the weather.

Exterior doors shall be 1⅜-inch thick of pine or cypress, panelled and glazed as shown.

Interior doors shall be 1⅜-inch thick of pine or fir. They shall be five cross panel doors of stock design.

Interior and exterior mill work shall be of cypress or pine throughout as the contractor may prefer.

Roofs shall be covered with cedar shingles 16 inches long and exposed 5½ inches to the weather.

Finished floors shall be of oak ⅞-inch thick throughout the master's portion of the first floor and of N. C. pine throughout the remaining portion of the first floor and throughout the entire second floor.

Wall board shall be used against all interior wall surfaces and ceilings throughout the entire first and second story of the building. This wall board shall be in quality similar to Adamant plaster board or other approved manufacture equally good. This board shall be held in place by wooden battens ⅜ x 1½ inches and arranged so as to form panels as shown on the drawings.

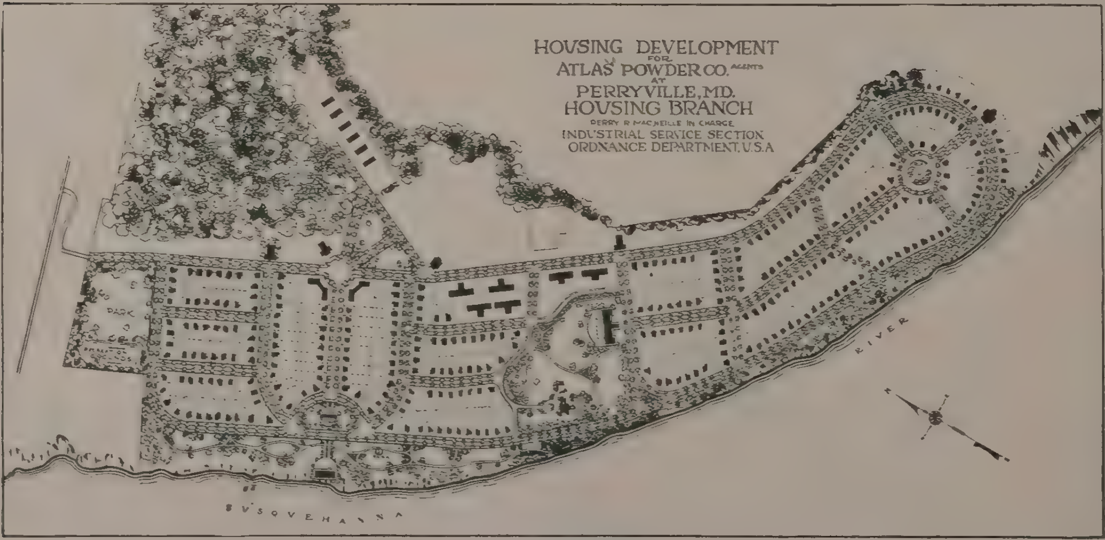
Finished hardware for doors and windows as well as the rough hardware necessary for the framing of the building shall be provided and set by the contractor.

Flashing shall be done with I. X. tin in valleys, around chimneys, over the tops of windows and wherever necessary to make the building weather and water tight. Cap flashing to be used against masonry construction.

Painting shall be done on all exterior woodwork with two coats of lead and oil paint as per sample approved by the architect. Interior finished woodwork throughout the master's portion of the building shall be stained and waxed, and throughout the servants portion of the building it shall be veneered in a natural color. The floors throughout shall be filled and shellaced.

PLUMBING:

The contractor shall provide and install the drainage and water supply pipes throughout the building and



Plot Plan, Perryville, Md.

A Street of Homes, Perryville, Md.

extend same to a point 1 ft. outside of the foundation walls. Cast iron pipes shall be used for the drainage system for sizes 2 inches and over, and standard galvanized iron pipe shall be used throughout for the water supply system and other pipes 2 inches in diameter and under.

He shall run hot and cold water pipes to all fixtures except water closets, where and as shown on the drawings.

The contractor shall install fixtures of the following description and quality:

Kitchen sink to be 20 x 30 inches Standard porcelain enamel roll rim sink with Integral back and fitted with N. P. faucets and trimmings.

Closet combination shall be of Pierce, Butler & Pierce manufacture, known as their "Victor" type with china low down tank and Engle ball cock with Miller oak seat and cover.

Bath tub shall be of porcelain enamel of Standard manufacture 5 feet 0 inches long and fitted with N. P. faucets, waste and overflow and other fittings complete.

Lavatory shall be of Standard manufacture known as their "Beverly" type and fitted with N. P. faucets, traps, chain, plug and strainer complete.

The work shall be installed in accordance with the rules and regulations of the municipal authorities having jurisdiction.

HEATING:

The contractor shall provide and install a hot air heating apparatus with tin cellar and wall pipes, iron registers, and register boxes, wooden cold air duct, a furnace of a manufacture to be approved by the architects.

He shall install the heating system in accordance with the architects' layout of same or a layout approved by them and shall guarantee to heat all portions of the building where registers are placed to 70° in zero weather.

ELECTRIC WIRING:

The contractor shall provide and install electric wiring in "Knob and Tube" work and run same from a point where the electric current enters the building, to connect with all outlets shown on the drawings.

He shall provide fixture lugs where necessary and leave outlets ready for the connection of the fixtures.

He shall provide and set a cut-out switch and fuse box.

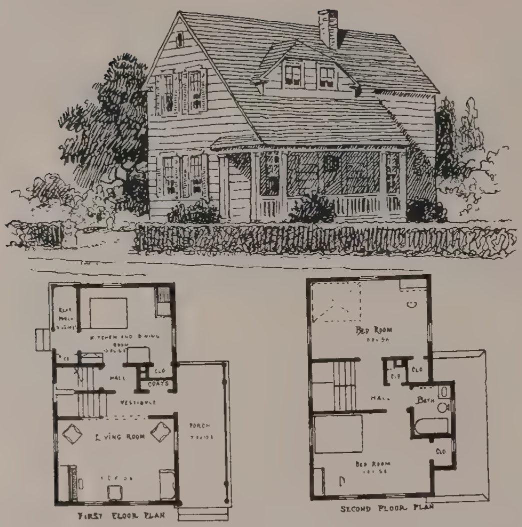
He shall install a front door bell with push button, wiring and batteries complete, to ring in the kitchen.

He shall perform the work in accordance with the rules and regulations of the Board of Fire Underwriters having jurisdiction, and he shall obtain and deliver to the architects, their preliminary certificate of approval of his work.

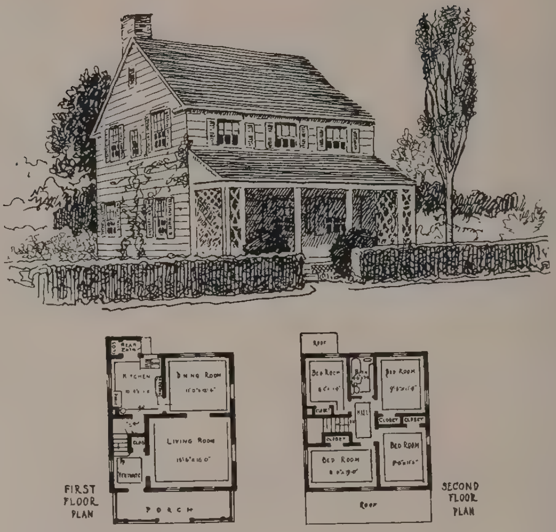
A Commodious Boarding House

The type of boarding house which has been designed for Perryville is a two-story Colonial building having forty-four single rooms, two double rooms, lounging rooms, large front balconies and kitchen and dining room. A feature of this design is the provision of a small two-room and bath apartment directly accessible from the kitchen by a private entrance. This apartment is for the use of the caretaker of the building. Central lavatories have been installed at convenient points. This boarding house can be operated by a small family.

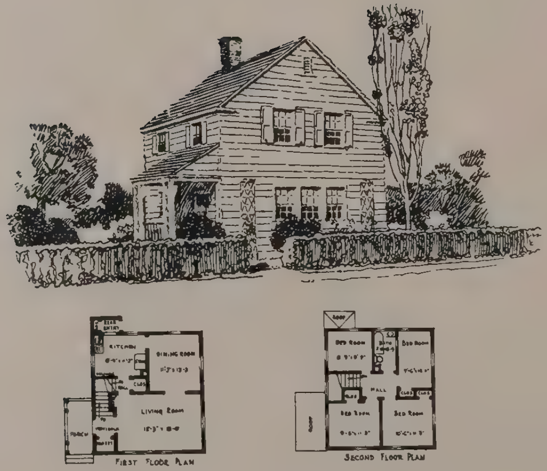
The Club house, which is illustrated herewith, is a building which may be used as a community center. It is equipped on the first floor with a large lounge and periodical room,



Type D-21



Type D-5



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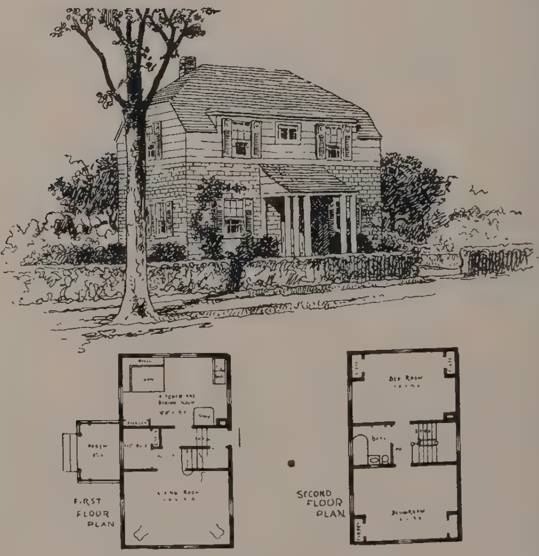


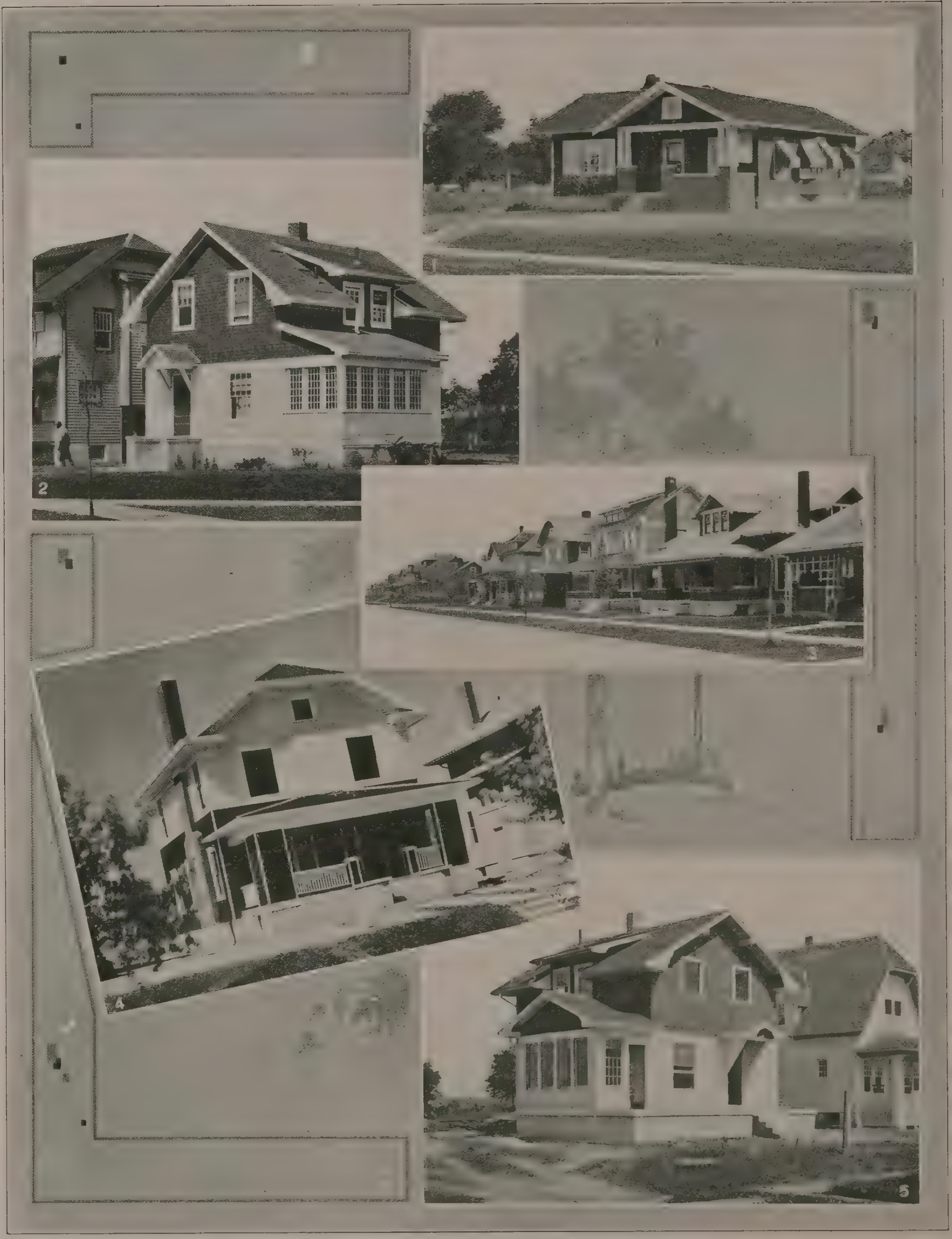
Type D-20

Types of Homes in the Perryville, Md., Housing Development

billiard room, retiring room, coat closets, lavatories and kitchen. Meals are usually served in the lounging room or, in the case of a large assemblage, the large auditorium on the second floor is used for a banquet or dinner room. The second floor is largely taken up with the auditorium, stage and dressing rooms for men and women. There have also been provided ante-rooms and a serving room in case a banquet or dinner is served in the auditorium. In general, this is a typical community building rather than a club house and no living quarters are provided either for guests or servants.

The School building as shown in accompanying illustration, is a four-room unit with necessary cloak rooms, library, teachers' rooms and play rooms for boys and girls, together with manual training shop. This building is one story in height but is so designed that additional class rooms may be added by the construction of wings to the present building. The application of flexibility of design to a school building in a growing community is a feature which should not be overlooked.

The general layout of this village is one which is certain to result in satisfaction on the part of tenants, and is conducive to healthy civic life and growth. Owing to advantageous geographical location and careful town planning features, this village is destined to be one of the attractive industrial developments of America.



House Types at Middletown, Ohio

Homes on Sutphen Avenue, Middletown, Ohio

MIDDLETOWN, OHIO

MANUFACTURERS' FINANCIAL ASSISTANCE TO WORKMEN MAKES POSSIBLE HOME-BUILDING ON EASY TERMS—CITY AUTHORITIES CO-OPERATE

WITH the city's population increasing at the rate of ten per cent a year, manufacturers of Middletown have been keenly interested in the housing developments there, and have facilitated the financing of new home construction by money deposited with the building and loan associations, and by giving material and moral support to workmen desirous of owning their own homes.

The actual development has been effected by real estate men and realty corporations independent of the industrial plants and through "Own Your Home" campaigns and the inducement of easy terms of purchase. Middletown has a high percentage of home-owners.

The Single Home Unit the Idea

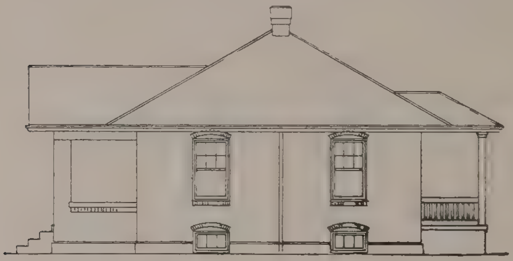
Construction has followed the idea of the single home unit, and while types vary from the four-room cottage to the ten-room mansion, each has its setting in a comfortably expansive yard, and flats and apartment houses have been neglected in the preference for a real individual home.

The city authorities have co-operated in the extension of service facilities. On application of a majority of frontage owners along a new street, sewers, sidewalks, curbs and service connections will be extended, paid for by the city, and bonds issued for the required costs. The total costs are then apportioned to the frontage of the abutting lots, and assessments

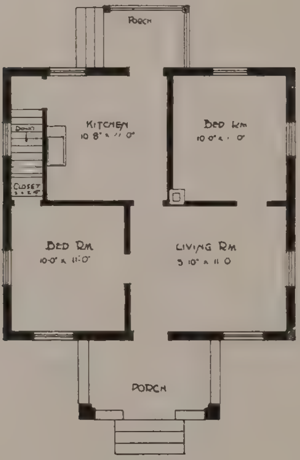
Illinois Avenue, Middletown, Ohio

are levied according to the benefits, these assessments being collectable with the regular taxes and spread over a period of ten years.

The great lumber mills of the South have poured their products into this city of homes, and architects have transformed them into monuments of comfort and beauty, real homes in a real community of home lovers.



– RIGHT SIDE ELEVATION –

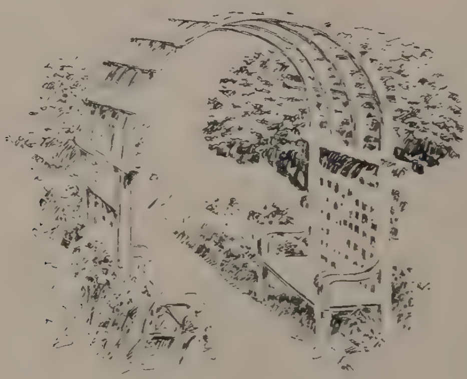


FLOOR PLAN

House Type 103, Middletown, Ohio

Specialized in Five and Six-room Homes

Middletown's largest realty company, incorporated in 1909, has developed six subdivisions, specializing in five-room and six-room homes with modern conveniences. The realty company sells on contracts with a ten per cent cash payment and a monthly provision for one per cent of the purchase price. The plan has proven popular and within the means of the average family man. Since the company began operations many home purchasers have voluntarily increased their monthly payments, and paid out the contracts in advance of the expiration term. The steadily increasing values of well-constructed homes in good subdivisions have further justified both the company and the buyer. A drive through Middletown's residence sections will show street after street lined with comfortable, well-kept homes, with restricted and protected surroundings that insure permanent desirability as a place to live in, peace and quiet, and the individual adornments in the way of plants, shrubbery and gardens add interest to the environment.



FIRESTONE PARK, AKRON, OHIO

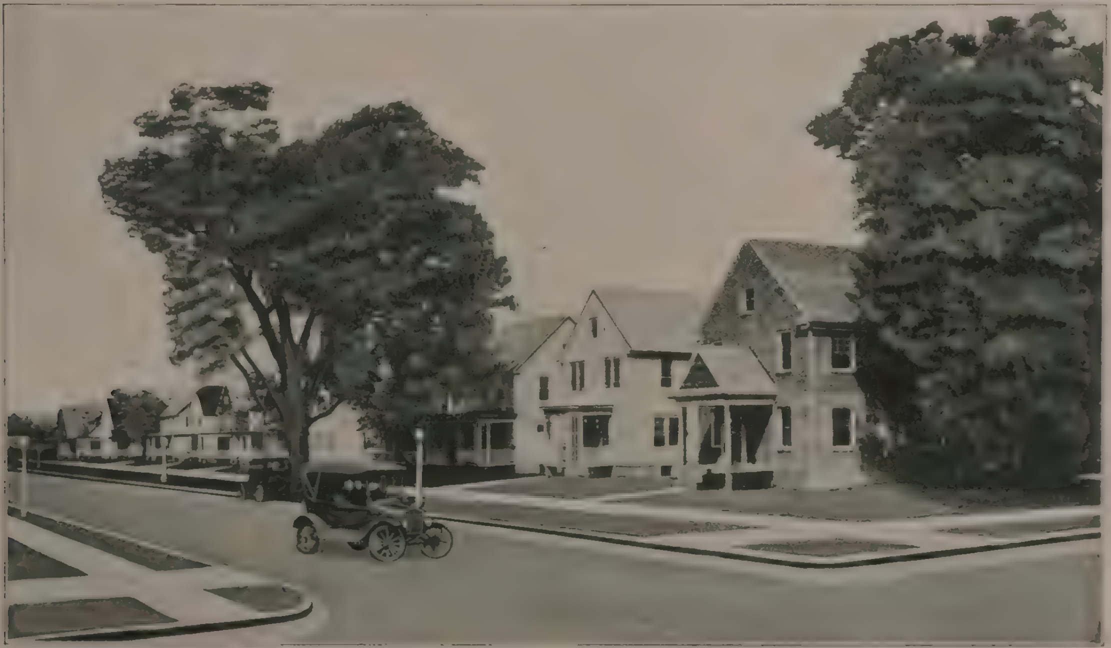
A SPLENDIDLY CONCEIVED HOUSING DEVELOPMENT OF THE FIRESTONE TIRE AND RUBBER COMPANY

By H. S. FIRESTONE

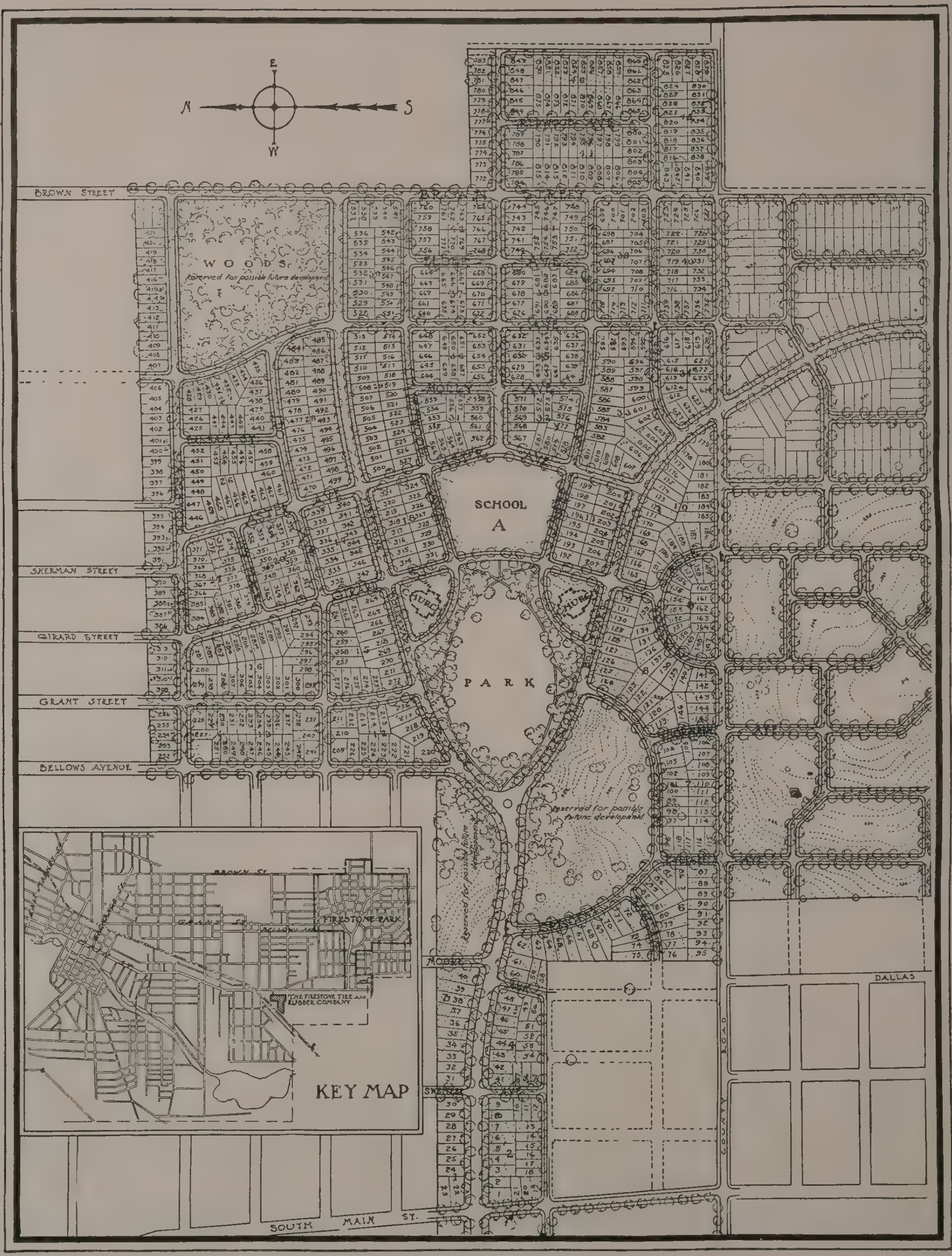
President of the Firestone Tire and Rubber Company

IT was the Firestone idea from the beginning to build here a community with all the delights of small town life, yet with all the advantages of proximity to a large city.

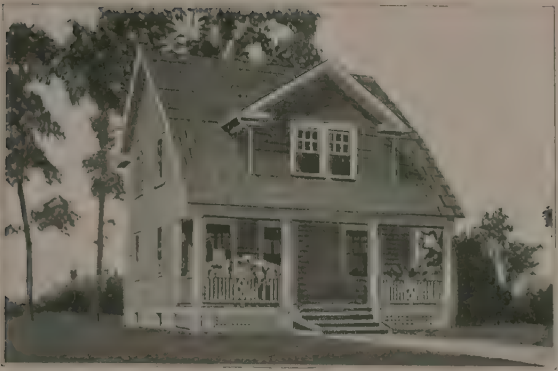
Mr. Alling DeForrest, one of the foremost landscape architects of the United States, was brought to Akron to lay out Firestone Park. Many plans were considered before the final plan was accepted. The improvements and the amount of money already invested in Firestone Park are great, but the results speak for themselves. We have developed over 300 acres of land. There are 300 more acres which will be developed soon. We have nine miles of sanitary sewer, five miles of storm drain, one-half mile of which is 6 feet in diameter. We have seven and one-half miles of water main, three and one-half miles of street paving completed, and we expect to complete another five and one-half miles this season. We have six miles of cement sidewalk completed, and expect to complete six more miles this summer. The main Firestone Boulevard is 110 feet wide for a distance of 1,500 feet, branching off into two boulevards each 80 feet in width. There is a community park of sixteen acres in the center, and at the head of this park stands the largest and best equipped school in the State of Ohio. It will be complete and in operation in the fall. We already have a thriving church which is

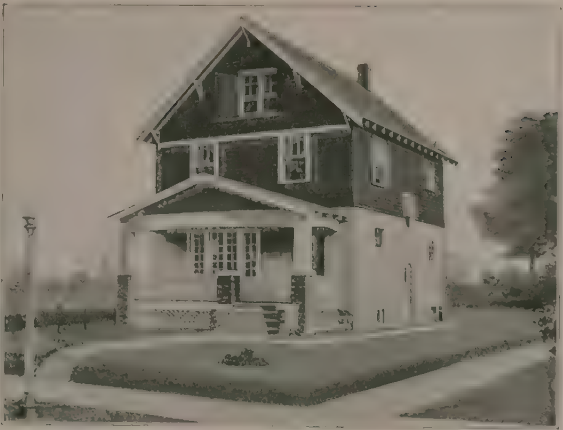


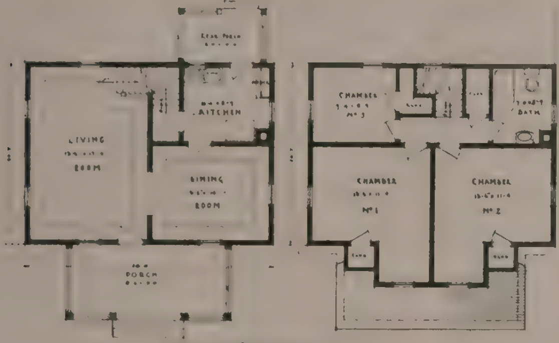
A Group of Homes on Firestone Boulevard, Firestone Park, Akron, Ohio. In this Development Every Effort Was Made to Preserve the Trees Standing on the Ground



Plot Plan, Firestone Park

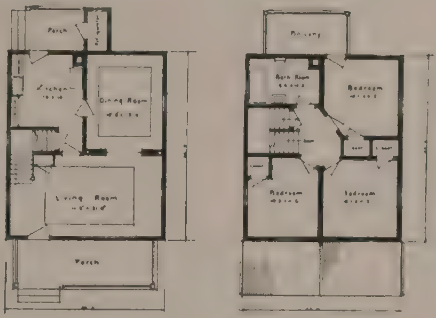




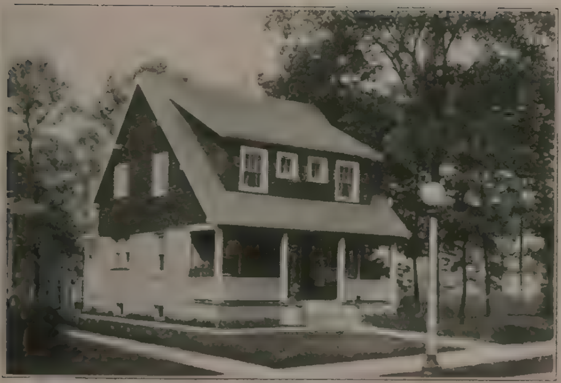


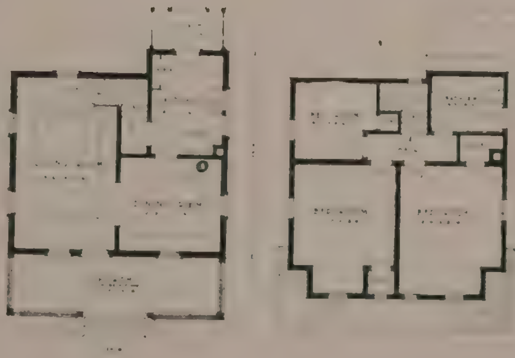
Floor Plans Type CC

Type CC House



Type E House





Type CF House and Floor Plan

House Types at Firestone Park, Akron, Ohio attracting "standing room only" crowds every Sunday. Two churches have announced that they desire to come to Firestone Park. One is a Methodist church, which has offered to put up a $30,000 building, and the other is a Lutheran church.

Firestone Park is a church-going community and we are proud of the fact.

The new Y. W. C. A. building has forty-four rooms and will house seventy-five girls. The restaurant seats 125.

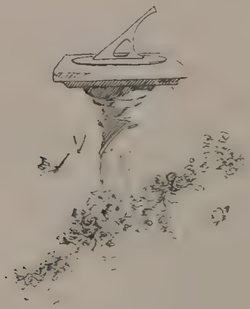
We are going to make Firestone Park the best part of Akron to live in and to bring up a family. Every one has heard of the Firestone Club House. In the great auditorium activities are constantly going on. The restaurant we think has done much to reduce the high cost of living in Firestone Park. The whole structure has paid its own way and Akron can be proud of the fact that it has been a model for other industries in other cities.

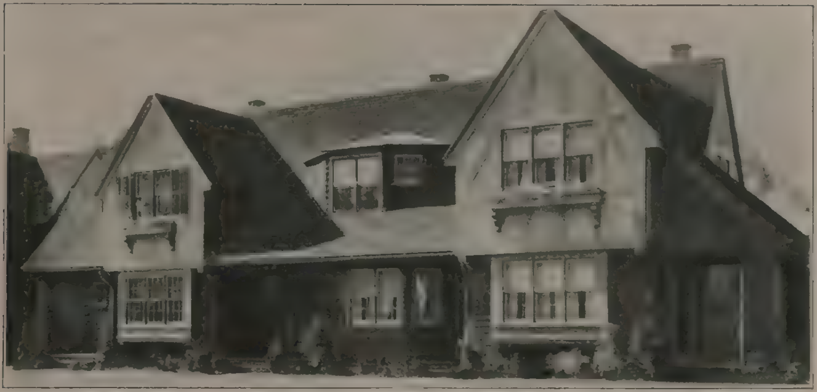
Wm. H. Kroeger, manager of the Coventry Land and Improvement Company, subsidiary to the Firestone Tire and Rubber Company, says of the Firestone Park development:

"We have constructed approximately 600 houses of which practically 525 are frame. These houses range in price from $2,400 to $6,000. They are mostly five six and seven-room houses with basements and finished attics; hot-air heat and bath, sanitary sewers, storm drains, water mains and gas mains have been constructed, sidewalks have been laid and all the streets paved. Planting will be done this fall. The street lighting equipment includes ornamental posts and underground cables. All telephone and house service lines are in the rear of the lots, there being no poles or wires on the streets.

"We feel that this subdivision is one of the most up-to-date in this section of the country and the people of this city certainly appreciate what we have done in laying out a beautiful residential section.

"These homes are being sold on the basis of 5 per cent down and 1 per cent per month. This 1 per cent includes the interest, taxes and insurance. The employees especially have found this to be a good opportunity for them to secure a home."





Three Family Cottage in the Housing Development at Derby, Conn., Built for Miss Frances E. Osborne. Murphy & Dana, Architects

DERBY, CONNECTICUT

COTTAGES BUILT FOR MISS FRANCES OSBORNE, MURPHY & DANA, ARCHITECTS

Dates of Construction: House No. 1—1909-10; House No. 2—1911-12; House No. 4—1913-14; House No. 5—1915-16.

Cost: Per family, Houses 1 to 5—$2,325; Type No. 6—$1,561.

Rents: Per month, Houses 1 to 5—$16 to $18; Type No. 6—$10 to $12.

Type: One row of two-, three- and four-family houses. One row of connected two-family houses. Number of rooms per family: Houses Nos. 1 to 5—6 rooms and bath with cellar; Type No. 6—4 rooms and bath with cellar.

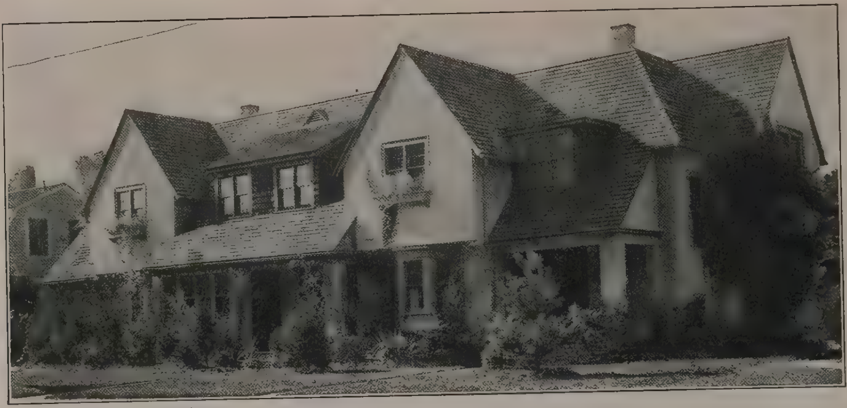
Construction: Rubble stone foundation walls, concrete cellar, floors and brick chimneys; usual frame type of construction above.

Exterior Finish: Walls—Clapboard shingles or stucco. Roofs—Shingles. Clapboards and shingles are either painted or stained. Porch floors—Georgia pine.

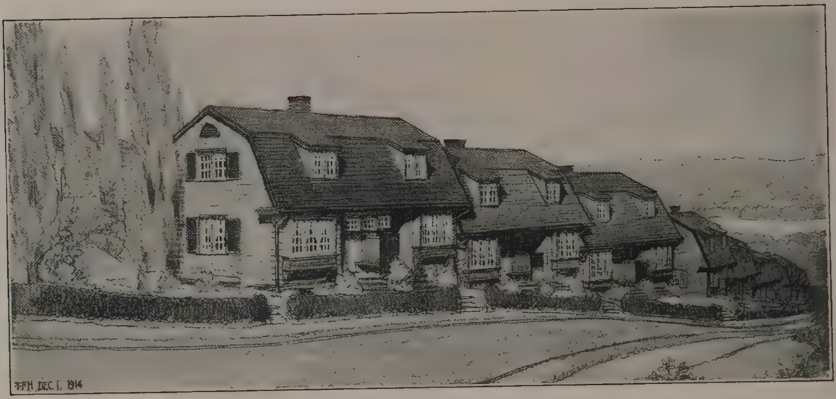
Interior Finish: Walls—Plastered two coats. Floors—Single N. C. pine—stained. Doors and trim—Stock doors N. C. pine trim, stained.

Heating: Separate hot-air furnaces, one for each family.

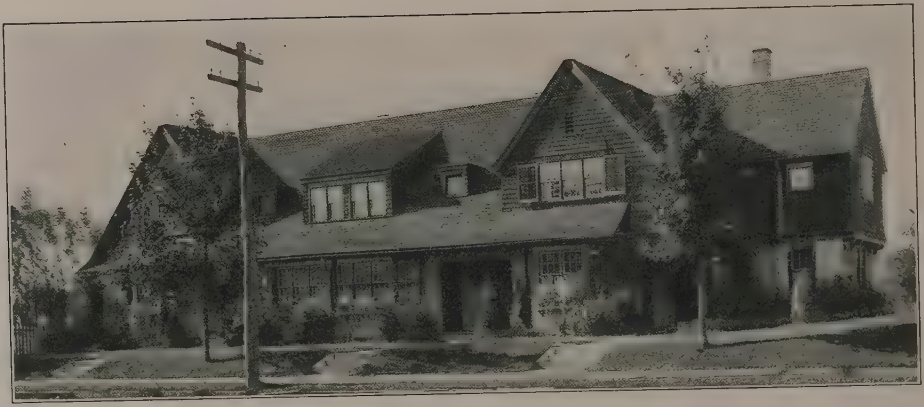
Lighting: Gas throughout.



Three Family Cottage, Type No. 2



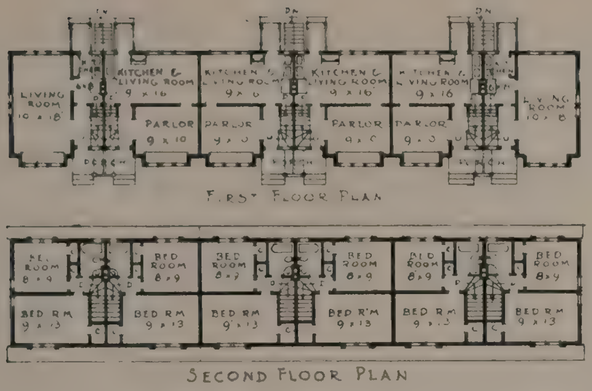
Two Family Cottage, Type No. 6



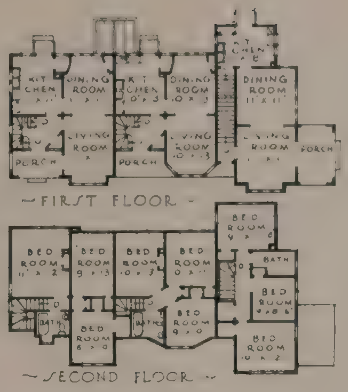
Four Family Cottage, Type No. 4

Cottage Types at Derby, Conn.

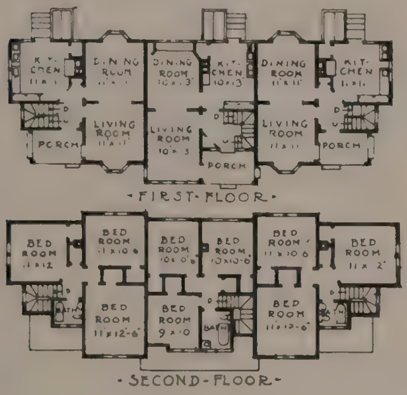
Built for Miss Frances E. Osborne
Murphy & Dana, Architects



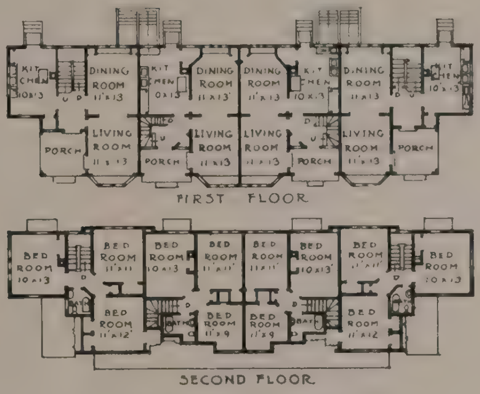
Floor Plan No. 6 Cottage



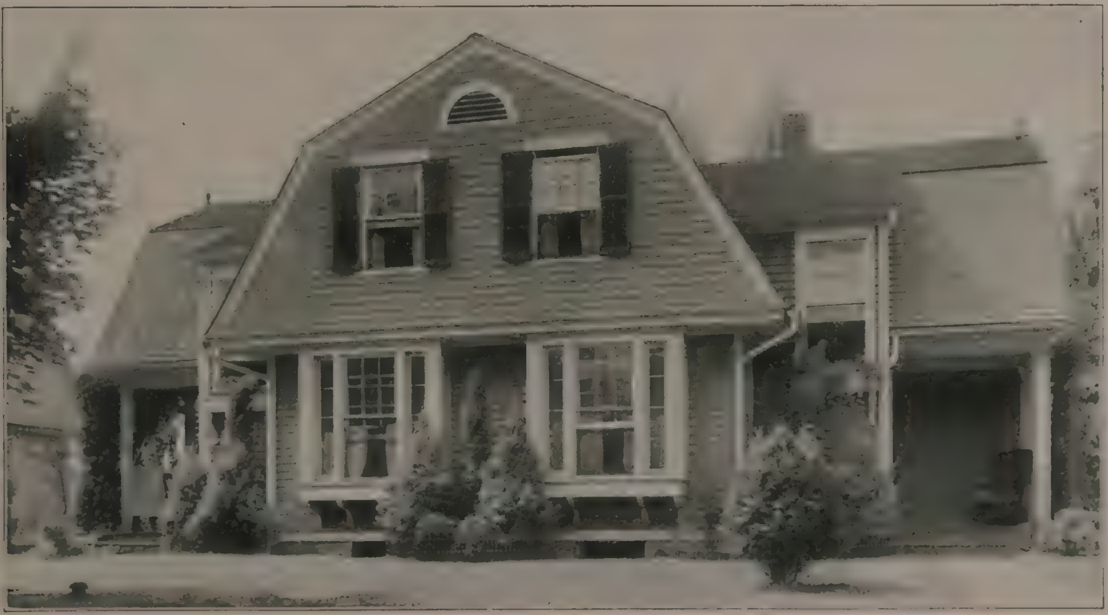
Floor Plan No. 5 Cottage



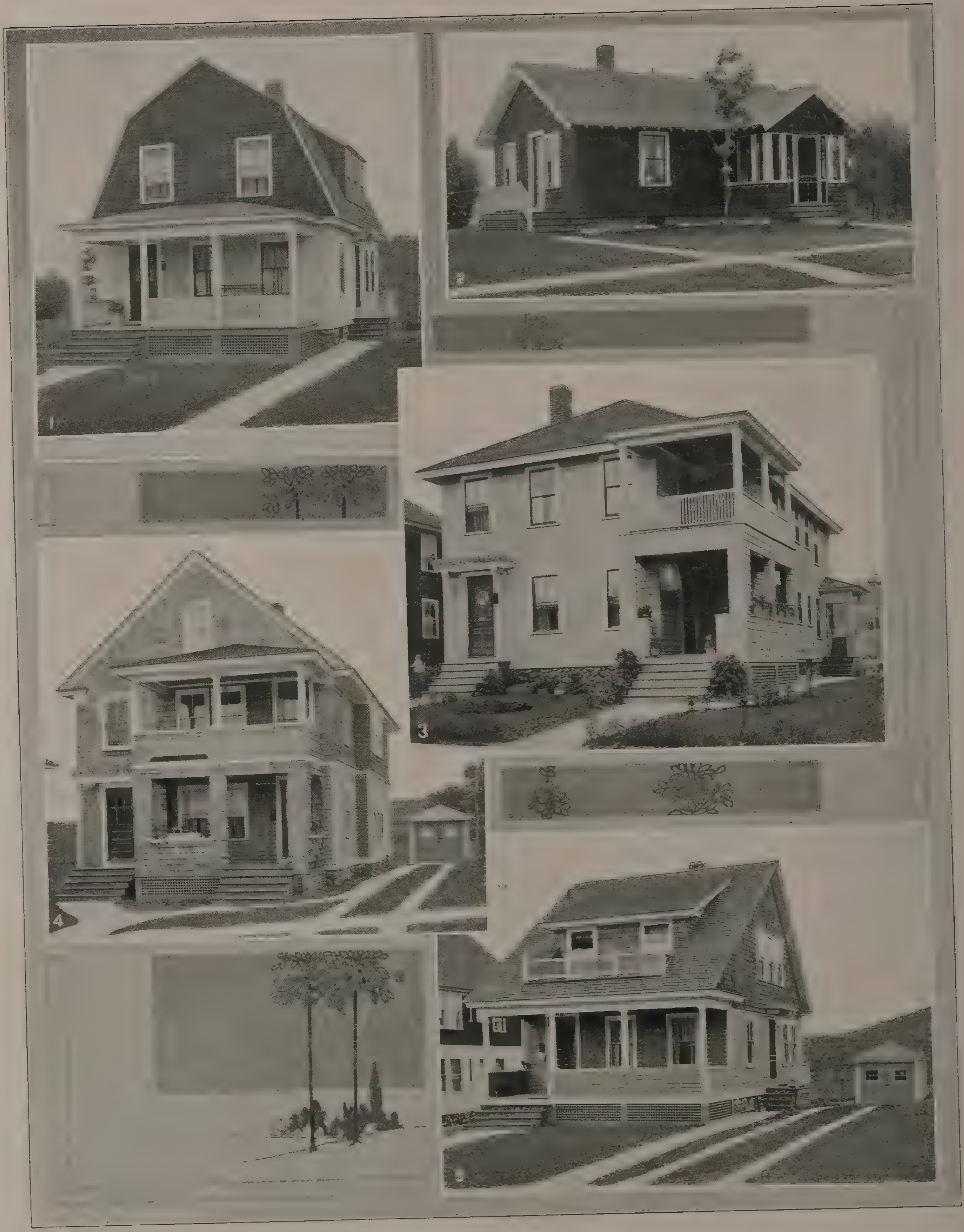
Floor Plan No. 2 Cottage



Floor Plan No. 4 Cottage



No. 1 Type Cottage and Floor Plans of Other Types, Derby, Conn.



House Types, Endee Manor, Bristol, Conn.

One hundred and two of these Houses were Erected in 102 Days at Endee Manor, Bristol, Conn.

ENDEE MANOR, BRISTOL, CONN.

THE HOUSING DEVELOPMENT OF THE NEW DEPARTURE MANUFACTURING COMPANY

102 HOUSES WERE BUILT HERE IN 102 DAYS

ENDEE MANOR represents a typical industrial village of the better type which should appeal to workmen desirous of providing proper living conditions for themselves and their families at moderate expense. It was financed by the New Departure Manufacturing Company, through a subsidiary organization created for this purpose, the New Departure Realty Company.

A tract of land was purchased at the north end of Bristol, within a short distance of the plant.

The 102 houses comprising the development were built in 102 days. Several types of dwellings are represented, single and double, no house holding more than two families. There are single cottages of four and five rooms, four-room bungalows, four- and five-room flats, and

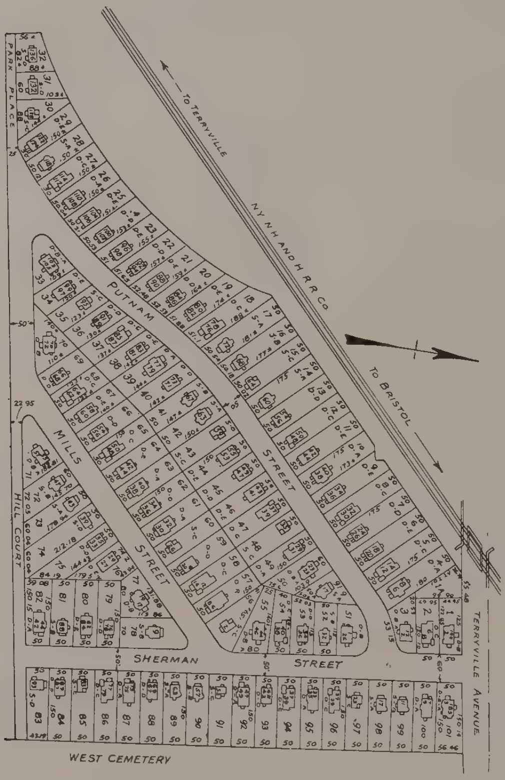
Sherman Avenue, Endee Manor, Bristol, Conn.

duplex houses containing three rooms downstairs and two on the second floor.

The company put in modern improvements — gas, electric lights and plumbing — but did not install furnaces, for the reason that as a rule the class of people to whom the houses are rented could not afford to operate a furnace. There are some exceptions, however, and several of the tenants have installed their own heating plants, for which the company will reimburse them should they move away.

The company also laid concrete walks and curbing, planted trees, started lawns and gardens, laid out parking places, and graded the streets.

All houses are rented to employees of the New Departure Manufacturing Company.



Plot Plan, Endee Manor, Bristol, Conn.

BUILDING FIRE-SAFE FRAME DWELLINGS

EXCERPTS FROM "DWELLING HOUSES," A CODE OF SUGGESTIONS FOR CONSTRUCTION AND FIRE PROTECTION RECOMMENDED BY THE NATIONAL BOARD OF FIRE UNDERWRITERS

A WELL-BUILT frame dwelling fully fire-stopped, and provided with other protective construction as elsewhere recommended, is practically on a par with masonry-walled houses of same design with wooden interior construction as regards resistance to an interior fire; a fire well started in either is pretty sure to consume the building if efficient fire-fighting facilities are not available, but the chances of controlling such a fire in a properly constructed house are very greatly increased. If suitable exits are provided as elsewhere urged, there should be no life hazard in either type of building.

The fire-stopping in frame buildings is almost invariably carelessly done, and insofar as this is true for the walls, the danger to the frame building is greatly increased over that existing in masonry-walled buildings. If owners and builders could be made to realize the protection secured by prudent and careful construction of frame buildings, the annual loss now chargeable to such buildings would be greatly reduced, and prejudice against them materially lessened.

NOTE.— The possibility of being able to erect frame buildings of wood which has been chemically treated or covered with fire-resistive paint to make it non-imflammable, and at an excess cost small enough not to be prohibitive for ordinary dwellings, has been a long-cherished ambition that may soon be accomplished. The United States Forestry Service is endeavoring to perfect new processes for such treatment, which, if successful and applicable at prices within the reach of the average home builder, will be a distinct public benefaction, of a value difficult to estimate.

Height and Area

Except as herein provided, no frame dwelling shall exceed two and one-half stories or thirty feet in height, and shall not exceed 3,000 square feet in area. The attic in a two-and-a-half story house may be used for sleeping rooms, but not for living purposes. No family shall be domiciled above the second story. Frame dwellings occupied by not more than one family may be three stories or thirty-five feet high. Towers, turrets or minarets on such buildings may exceed the foregoing limit 10 feet, provided the greatest horizontal dimension of such structure does not exceed 15 feet.

Within town limits or other congested localities, the combined area of frame buildings, sheds, and outhouses located on any lot should not exceed 80 per cent of the lot area.

Protection From Severe Fire Exposure

In no case shall a frame dwelling with wooden siding be erected or altered, to extend within 5 feet of the side or rear lot line within town limits, nor within 10 feet of another building, unless the space between the studs on such side be filled solidly with not less than 2½ inches of brickwork or other equivalent incombustible material, and the entire exposed side be covered with at least a ¼-inch layer of asbestos board, or ⅜-inch of plaster board back of the wooden siding. When such walls are thus filled and covered, their distance from a side or rear lot may be reduced to 3 feet; or to 5 feet from another building. If the adjacent walls of two buildings have no openings, and are filled and covered as above specified, there need be no limitation as to distance between them.

Note 1.— It is recommended that when such buildings are nearer than 3 feet to a side or rear lot line, or 5 feet to another building, the cornices and overhanging eaves on the side or rear wall shall be of, or covered iwth, incombustible material.

Note 2.— Some authorities recommend the use of ¼ inch asbestos board, ⅜-inch plaster board, or other incombustible felt or covering of same thickness under all the siding on frame dwellings as adding greatly to the insulation against cold and to the fire-resistance.

Framing

Framing timbers should have sufficient size and closeness of spacing to insure adequate strength even when subjected to unusual stresses. It is poor economy to use floor joists so small that they lack rigidity. They are always a source of annoyance due to cracking of plaster; rattling of lighting fixtures, and other defects resulting from a vibrating floor. While it is possible to secure rigid construction with timbers of small cross-section closely spaced, it is not advisable to do so from the fire protection standpoint. Three small timbers having the same total cross-section as one large timber, will burn through in less than one-third the time required to consume the large timber, with consequent danger of quick collapse. It is for this reason that balloon frame buildings burn so rapidly; a fire well started in one is seldom controlled before the structure is destroyed. Other precautions being equal, the larger the framing timber the safer the structure as regards fire. This is the whole theory of "Mill or Slow-Burning Construction," which is used so successfully for factories.

Floor joists and rafters in frame dwellings shall be not less than 2 inches in thickness (commercial size). Joists 3 inches thick are recommended. They are especially desirable for floors having considerable span. All frame or wood buildings exceeding 15 feet in height shall have their sills secured to the foundations in an approved manner and be erected with sills, posts, girts and plates of suitable size and materials with proper mortise and tenon framing and braced with studs at all angles; but this does not prohibit the use of balloon framing with proper sills, and ribbon strip not less than 1¼ inches by 5 inches, and provided that the outside walls are fire-stopped at each floor level.

It is equally important that the essential structural features necessary to prevent spread of fire through a dwelling, be incorporated in a frame house as in any other type, and the necessity for such precautions increases rapidly with enlargement of the building.

Division Walls in Rows of Frame Dwellings

In rows of frame dwellings, the dividing walls between houses shall be built of brick, terra-cotta, concrete, or other approved incombustible material; or they may be built with 4-inch studs, filled solidly with brickwork laid in mortar, or with other suitable incombustible material and covered on each side with at least ½ inch of metal lath and plaster, or plaster board. Such dividing walls shall rest on masonry walls or wooden girders and shall extend to underside of roof boards, and a flush mortar joint shall be laid between the roof boards and the walls.

In rows of more than three houses, every alternate division shall be constructed of brick not less than 8 inches thick, or concrete not less than 6 inches thick. These walls shall extend from front to rear, be solid without opening, and shall extend at least 2 feet above the roof, and be coped. If such parapet be of concrete, or if the top six courses of brick be laid in Portland cement the coping may be omitted.

The ends of floor beams entering such walls from opposite sides shall be so staggered or separated that there shall be not less than 4 inches of masonry between the beams where they rest on the walls. Joists shall not be allowed to project through the wall.

If it is impossible to secure at least 4 inches of solid masonry between joist ends when they rest in the wall, they should be supported by metal wall hangers on the surface of the wall.

Note 1.— The great danger of a fire finding its way through an 8-inch bearing wall must be recognized. Even though a separation of fully 4 inches is maintained between the ends of all the joists, there is very likely to be some mortar joint left open, and if so, a fire on one side is sure to go through it. Where a bearing wall as thin as 8 inches is used, great care should be exercised in laying it to insure a maximum separation of joist ends, and that all brick joints are flushed full of mortar. Cement mortar is much the best for such walls.

NOTE 2.— There is one class of frame residence building usually built in rows which should be entirely prohibited, namely, the wooden tenement house commonly known as "three-decker," "four-flatters," etc. This class of building is prevalent in manufacturing cities, particularly in the eastern states. They are ugly to look at, and are a serious fire hazard. Their cheapness invites a congested occupancy of inferior grade, demoralizing in its influence and a menace to health.

Reasons Why Dwellings Burn Freely and the Remedy

The proportion of dwellings which catch fire and are a total loss, or which have building and contents ruined, is very high. The reasons are plain. First, in cities such buildings are usually located in outer areas more or less remote from fire fighting apparatus. Many are situated outside of city limits, or in villages or suburban developments where fire protection appliances are meagre and unreliable. Then there are vast numbers scattered all over the country which are entirely unprotected. Second, dwellings are generally small and low, so that a fire well started before discovery is likely to envelop all portions before outside assistance can become effective. Third, the majority of dwellings are of very combustible construction, with open stairways lined with varnished or painted woodwork connecting all stories, and with no provisions for arresting the spread of fire from floor to floor or from room to room. The cellar where the heating appliance is usually located, often contains much combustible material, a combination which is dangerous. Moreover the cellar is more or less directly connected by open channels with all parts of the house, including the garret. This results from lack of proper protection around water, gas and steam pipes, hot air pipes, dumb waiter shafts, and open spaces through walls and partitions. Fourth, the nature of the occupancy is such that much of the time there are not enough able-bodied occupants present to do effective fire fighting from within.

These four conditions combined result in the enormous annual property fire loss, and the sacrifice of many lives. The lamentable feature of the situation is that a large part of this loss could be prevented by reasonable precautions in construction and careful observance of the ordinary rules of fire protection. The cost of the former would be comparatively small; the only expenditure for the latter would be a little thoughtful vigilance.

The cost of structural fire barriers necessary for reasonable protection for a dwelling house amounts to but a small percentage of the total cost of a building. For this reason it is hoped that architects and owners will adopt them once their attention is directed to the reduced hazard resulting from a little intelligent thought and care. Speculative builders who erect houses to sell, and build them as cheaply as possible with slight regard to their utility, will perhaps be disinclined to adopt alterations which will add anything to the cost. However, even these should be convinced of the advantage gained as an advertising medium by the introduction of such structural safety features. It is reasonable to assume that a prospective home purchaser would be very favorably impressed with the idea of buying a house in which all precautions had been taken against the spread of fire.

Walls—Bearing Capacity of Soils

In the absence of tests, the safe bearing capacity of different soils used to sustain walls should not exceed the values given in the following table:

Character of Soil	Tons per Square Foot
Soft Clay	1
Firm Clay, fine sand, or layers of sand and clay wet	2
Clay or fine sand, firm and dry	3
Hard Clay, coarse sand, gravel	4
Hard Pan	8 to 15
Rock	15 to 72

Footings

The footings for foundation walls, piers and columns of masonry buildings should be constructed of plain or reinforced concrete. Stone laid in cement mortar may be used for footings for frame buildings, but good concrete is better.

Concrete for footings should be made of at least one part of Portland cement, and not more than 2½ parts of sand, and 5 parts of broken stone or gravel.

Where mass concrete is used for footings or foundation the stone or gravel shall be of such size as will pass through a two-inch ring. Sufficient smaller aggregate shall be added to secure density.

Note.— Under some conditions it is permissible to embed large stones in mass concrete, it then being called "rubble concrete."

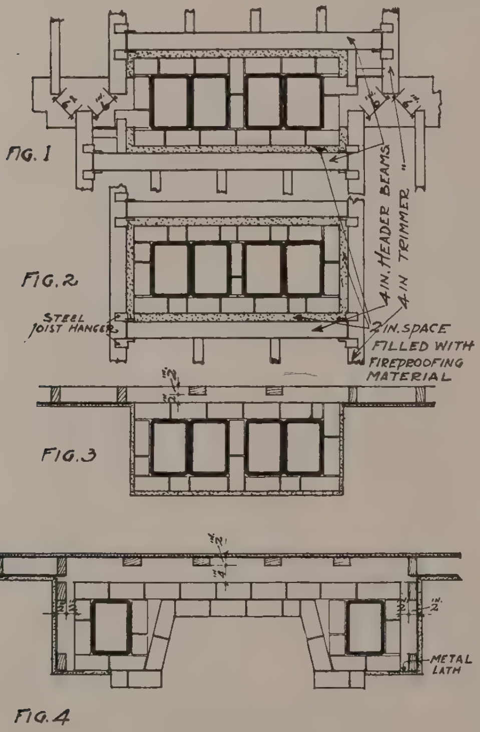


Plate VII.

Fig. 1. — Floor framing around chimney in a party wall, to secure proper space between ends of floor joists.

Fig. 2. — Ordinary floor framing around a chimney. All timbers 2 inches clear of brickwork and space filled with fire-proofing material.

Fig. 3. — Stud partition across back of a chimney showing proper method of arranging studs.

Fig. 4. — Stud partition across back of a fireplace and around the ends of the chimney breast, showing proper method of arranging studs. Method of fire-stopping this space is shown on chimney section, Plate IV.

Concrete footings for dwellings with masonry walls should be not less than 12 inches thick. Footings for foundation walls of frame dwellings exceeding 15 feet in height shall be not less than 8 inches vertical thickness.

The bottom of footings shall rest upon solid ground at a depth at least equal to the frost line below the surface, unless solid rock occurs above this point; or they may rest upon tiles or ranging timbers of wood where necessary. If wooden footings are used they should be entirely below the level of low water.

Footings should be so designed that the loads they sustain shall be uniformly distributed.

The dead loads carried by the footings shall include the actual weight of the superstructure and foundations down to the bottom of the footing. All tanks or other receptacles for liquid shall be figured as being full. The live load in a dwelling is sometimes considerable when account is taken of pianos, book-cases, heavy furniture, rugs, etc., as well as crowded assemblages of people. It should be taken as not less than 60 pounds per square foot for the ground floors, and 40 pounds per square foot for upper floors.

Note.— It is poor economy to skimp footings. If they are insufficient for the load they carry settlement is sure to come in time, producing ugly wall cracks, misfitting doors, openings which will let in ground water and other defects, which plague the occupants as long as the house exists. The settlement of foundations is also liable to produce chimney cracks, and so cause a fire hazard.

All footings shall extend at least 4½ inches outward from each side of the bottom of the foundation walls which rest upon them. In no case shall the load per square foot under any portion of any footing due to the combined dead, live, and wind loads exceed the safe sustaining power of the soil upon which the footing rests.

Footings and foundation walls shall be laid in cement mortar.

Foundation Walls

Foundation walls are construed to include all walls and piers built below the curb level, or nearest tier of beams to the curb, or to the average level of the ground adjoining the wall, to serve as supports for walls, piers, columns, girders, posts or beams.

The foundation walls of frame structures exceeding 15 feet in height, built of stone, shall be not less than 16 inches thick and if of brick or concrete not less than 12 inches to the grade and 8 inches to the underside of the sill. If the foundation and first story walls are constructed of brick or concrete, the foundation walls shall be not less than 12 inches thick to the first tier of beams, and 8 inches thick from the first to the second tier of beams; or if these walls are constructed of stone, they shall be not less than 18 inches for the foundation walls, and 16 inches for the first story wall.

Major Structural Requirements to Protect Life and Prevent Spread of Fire

STRUCTURAL FEATURES WHICH EVERY DWELLING SHOULD POSSESS

There are three fundamental structural features that should be incorporated into every dwelling in order to safeguard properly the lives of the occupants and to resist destruction of the building by fire. These are:

(a) Proper protection of stairways and other vertical openings.

(b) Introduction of a secondary means of exit from upper stories.

(c) Providing a fire-resistive horizontal cut-off between the cellar or basement and the story above.

These three requirements are so inter-related, the accomplishment of one to a certain extent removes the hazard of the others. Whether they are given in the order of their relative importance is difficult to say, and is really immaterial. They will be discussed in the order here given.

Danger From Open Stairways

Even in fire-resistive houses of good construction there is always danger of intense fires due to burning contents. Furniture, hangings, bric-a-brac and floor coverings are always present sufficient to make a hot blaze if well ignited. The danger is that the smoke, heat and sparks from such a fire in any lower story room may be carried upward through the house by an open stairway, and thus imperil lives and property on the floors above. Once the gases and air surrounding a fire attain the combustion temperature of wood and fabrics, they become dangerous because they will ignite everything inflammable they touch. Under such circumstances a fire will jump from floor to floor through an open stairway with incredible rapidity, even though the latter be quite free of combustible material.

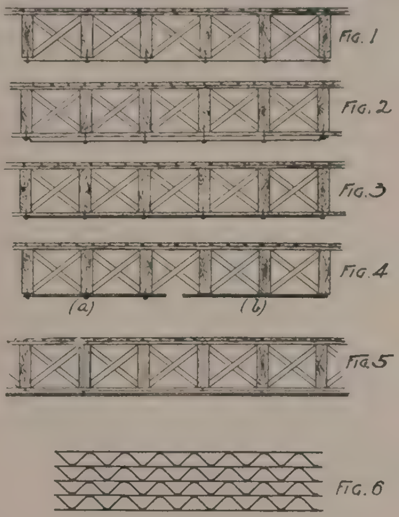


PLATE X.

Recommended Methods for Protecting Wooden Ceilings Over a Furnace

For descriptions, see Section 45, par. 3.

Figs. 1 and 2. — Sheet metal. Note how air space is obtained.

Fig. 3. — Layer of plaster board covering with metal.

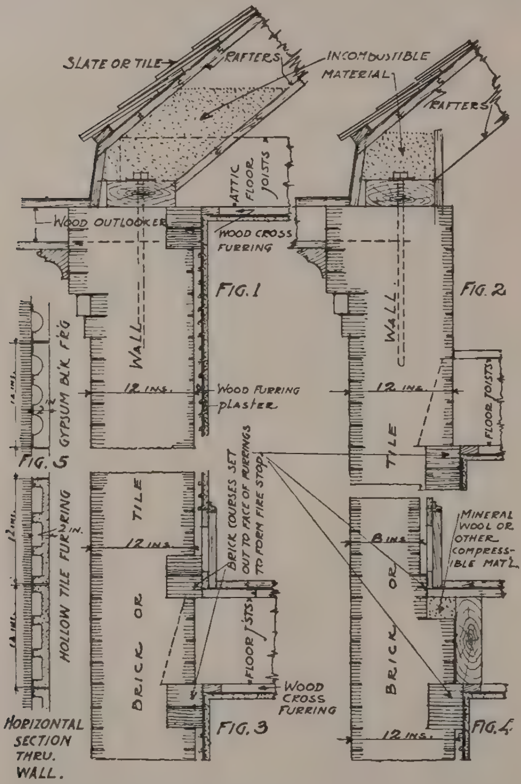
Fig. 4. — (*a*) Cellular asbestos. (*b*) Metal lath and plaster.

Fig. 5. — Two layers asbestos mill board covered with metal lath and plaster.

Fig. 6. — Detail showing a section of asbestos cellular board.

It is for this reason that stairs and stair hallways should, wherever practicable, be separated from the balance of the house by incombustible partitions and fire doors.

Complete enclosure of stairs and hallways is the ideal method of protection against vertical spread of fire, but it is recognized that such separation of rooms from entrance hallway upon the first floor would be in some cases an objectionable interference with architectural effect and artistic furnishing. As fires are less likely to originate in the reception and living rooms than in other portions of a house, there would doubtless be occasional justification for open connection between such rooms and the entrance hallway, provided they are cut off from the kitchen, dining room, and other more hazardous parts of the house by incombustible partitions. It is very essential that all other portions of the house be separated from the main hallway by substantial fire-resistive partitions and doors.



Dwellings with Walls of Brick or Other Masonry

Fig. 1.— Method of fire-stopping at eaves when attic floor joists are level with plate.

Fig. 2. — Same as Fig. 1, except that attic floor joists are any distance below the plate and built to the walls. Support for fire-stopping might be same as for Fig. 1 if more convenient.

Fig. 3. — In this and the other figures of this plate note fire-stopping of wooden furring by two courses of brickwork being set out to face of furring above and below floor joists all around the building. Other types of masonry walls should be built out in the same manner.

Fig. 4. — Fire-stopping at a floor level when the wall is thinner above the floor than below.

Fig. 5. — Terra cotta and gypsum block wall furring.

NOTE. — The first course above each floor shall either be solid blocks or the hollow spaces be filled with mortar.

Dwelling house fires most dangerous to life are those which occur in the cellar, basement, or first story. The smoke and heat ascend through all possible channels and always concentrate in the stairway if it is accessible. When such a fire happens at night and the occupants are asleep, the danger of the stairway being clogged with smoke or filled with flames before discovery is very great. When this occurs, if other means of exit from upper floors is not provided, the only possible escape is by jumping from the windows. Many lives are lost in dwelling house fires annually from this cause and too much stress cannot be laid upon the extremity of the hazard and the necessity for removing it.

NOTE.— Experience has shown that people compelled to jump from a third or higher story of a building are almost invariably killed or dangerously injured. Death has frequently resulted from a jump from even a second story window, and serious injury, such as broken limbs are very likely to be received. Stone pavements and frozen ground are especially perilous.

This logically leads to a consideration of the second fundamental structural safety requirement, which will be discussed before methods of construction to overcome these defects are described.

Necessity For Secondary Exist

It must be recognized that the protection herein indicated for main stairways could not be efficient under all circumstances and at all times. There would always be the possibility of fire within the stair hallway itself or in rooms not isolated from it, also in rooms supposed to be properly separated from the stairway, but temporarily connected with it through a doorway accidentally left open. For these reasons it is absolutely necessary that at least one additional means of safe exit be provided from the upper stories of every dwelling. In very large houses more than one may be necessary.

The character of such exits is immaterial, provided they will afford safe egress in an emergency. For most dwellings the logical and natural solution of the problem is the introduction of an additional stairway. Such a stairway is a great convenience in every house, and is especially desirable where servants are employed. Many houses have such back stairways, but when arranged as they frequently are, to connect on an upper landing with the entrance stairway and therefore are contained in the same hallway space, they have no value as emergency exits. A fire that rendered the entrance stairway useless would involve the rear stairway at the same time, and vice versa. Furthermore, rear stairways as ordinarily constructed and connected with the kitchen or other rear rooms, where fire is liable to occur, constitute a distinct menace in that they afford a direct passageway for smoke and fire to all upper floors and the front stairway.

The remedy for these defects is to place the rear stairway in a separate fire-resistive enclosure, with doorway connection to the front stairway or hallway in each story above the first, and connect as many of the upper story rooms as possible with the rear stairway so that entrance to it could be gained without passing through the front stair hallway. This is the simplest and most desirable method of securing safe emergency exit, as it furnishes egress for the occupants of the upper story rooms by either stairway. It is important that such secondary stairway be provided with a door at the bottom.

Every dwelling over one story high, either new or old, and irrespective of size, should be provided with some second means of exit from the upper stories. It is particularly important where attic rooms are occupied. This is a matter for serious consideration. Think it over and adopt some plan to accomplish it.

In connection with the subject of safe egress from a dwelling it is proper to call attention to the "horizontal exit" as a means of escape from fire. Another form of such exit may be used where dwellings are built in a row. Windows of upper stories of adjoining houses can be connected by a balcony which affords an excellent emergency exit around the party wall, but the obvious objections to such connection between houses occupied by different families would in most cases prevent its use.

Horizontal Cut-off For Cellars

As the heating equipment of most dwellings is located in the cellar or basement, where subject only to occasional supervision; and as that space is also usually a storeroom for fuel and all sorts of combustible material, the chances of a fire are evident. There is also the additional hazard of defective lighting appliances in such location, either from improperly protected fixtures or in the use of lamps, candles or matches. Be the cause what it may, whether an overheated furnace which being "out of sight" is "out of mind;" or carelessness in handling lights or matches; or possibly spontaneous combustion in rubbish; the fact remains that records show an excessive number of cellar fires. As such fires frequently attain considerable headway before discovery, they are liable to involve the whole house by working upward through all open connections, and the many small hidden channels due to ignorant design or defective workmanship, whose existence was unknown to the occupants. The remedy is to confine such fires at the place of origin by a cut-off between the cellar and the story above by making the separating floor as fire-resistive as possible consistent with the type of construction, and to properly protect all openings through same.

In dwellings where it may be impossible to secure the high degree of protection afforded by a fireproof floor for a cellar cut-off — also in frame dwellings of a grade which would not warrant the expense of such a floor — it is still very essential that efficient temporary protection be provided, and that every precaution be taken to prevent a cellar fire spreading to floors above, at least long enough to afford reasonable time to subdue it. This can be accomplished by protecting all communicating openings and by covering the ceiling with fire-resistive material.

Window Protection

When two portions of a dwelling are placed at right angles to each other, the windows in the angle should be kept as far apart as possible to avoid a fire jumping through them from one wing to the other.

Where it is necessary to have such angle windows near each other, or where windows face near-by combustible buildings, it is desirable that they have metal frames and sash and be glazed with fire-resisting glass, or the windows should be protected by fire-shutters.

Note.— Such construction might not be practical for cheap dwellings, but the extra cost would be quite justified in expensive dwellings.

Chimneys, Flues, Smokepipes and Fireplaces

DEFECTIVE CHIMNEYS

1. The worst single cause of fires in every State in the Union is the defective chimney, including flues and stovepipe connections. Proper chimney construction is therefore the one most important structural feature in reducing the chances of fire.

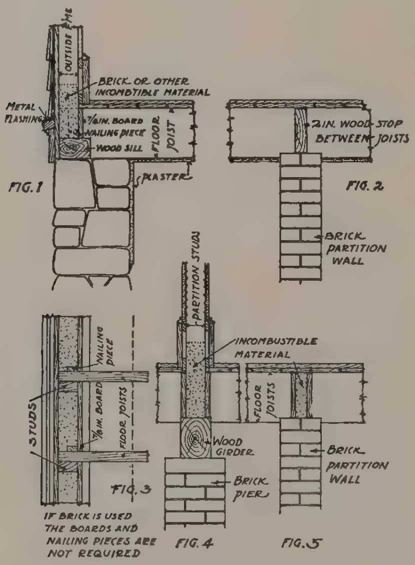


Plate XIII.

Figs. 1 and 3. — Elevation and plan showing fire-stopping of wall of frame building at line of sill and between studs and floor joists.

Fig. 2. — Fire-stopping with timber cut between floor joists on top of brick partition.

Fig. 4. — Fire-stopping of partition resting on wooden girder.

Fig. 5. — Same as Fig. 2 except that incombustible compressible material between two boards is used instead of a timber.

The reasons why chimneys are such a fruitful source of fires are numerous; the following are the principal ones:

(a) Use of terra cotta sewer pipe, or other unprotected tile or hollow blocks, for a chimney.

(b) Construction of chimneys with brick laid on edge.

(c) Chimney walls built with brick flatwise, but only one brick thick and flues unlined.

(d) Supporting chimney on the timber construction of a building, or brackets; or insufficient masonry foundation when the chimney rests on the ground.

(e) Two or more connections to a single flue.

(f) Building woodwork into the wall of chimney, or placing it in contact with the exterior surface.

(g) Smokepipes arranged to enter chimney in vertical run.

(h) Carelessness in sealing connection between smokepipe and chimney, and failure to anchor pipe to chimney.

(i) Carelessness in not renewing smokepipe which has rusted out where it connects with chimney, also in allowing combustible material too near the pipe.

(j) Carelessness in not keeping chimney clean and joints in brickwork properly pointed.

A considerable part of the chimney hazard is due to carelessness, and the balance to bad construction; nevertheless, if chimneys are properly built, nearly the whole hazard would disappear. Therefore the importance of proper construction and maintenance of chimneys cannot be emphasized too strongly.

(Plate IV shows Standard Recommended Chimney Construction.)

Construction of Chimneys and Flues

The use of sewer tile or other clay or concrete tubes for a chimney is dangerous in the extreme. They are very liable to crack due to unequal expansion, thus permitting the escape of sparks and hot gases, which will ignite woodwork or other combustible material near them.

Building chimneys with brick on edge is a practice all too common in some parts of the South and Middle West. It is very little if any better than the unprotected tile chimney, and is vigorously condemned.

The walls of dwelling house chimneys used for stoves, ranges, fireplaces, heating furnaces, or other heating appliances, and irrespective of whether the fuel be wood, coal or gas, shall never be less than 4 inches thick, and lined with hard burned terra cotta or fire clay flue lining.

Note. The lining of chimney flues is very important, for it prevents the disintegration of mortar and bricks due to flue gases and temperature expansion. The omission of lining is a serious defect in old chimneys and the cause of numberless fires.

Only lining made for the purpose and adapted to withstand high temperature should be used. Such lining is not subject to disintegration by ordinary flue gases. Other varieties are liable to crack and have pieces fall into the chimney, thus opening the possibility of exposing defective mortar joints in the brickwork with consequent danger.

Note. In regions where natural gas is used for fuel, it is claimed that ordinary terra cotta flue lining will disintegrate by the action of the flue gases and crumble in the chimney. Where such conditions exist, care should be taken to use a fire clay flue lining which experience has shown will withstand the gases; or line the chimney with fire brick.

Flue linings shall be 1 inch thick, shall not have collars, shall be set in cement mortar with the joints struck smooth on the inside. The linings shall be built in as the chimney is constructed, and all spaces between brickwork and lining filled with mortar.

Note. Rectangular linings fill the flue space better and make it easy to fill voids with mortar, thus producing a strong chimney; but a round flue is somewhat easier to clean, and it is said to give a better draft. The square form is commonly used.

The flue lining shall start from the bottom of the flue, or from the throat of a fireplace, if the flue starts from a fireplace, and shall be carried up continuously the entire height of the flue. If the thickness of the masonry surrounding the throat be less than 8 inches in any part, the lining shall start at bottom of the lintel.

Note. Masons are often careless about lining the flue even where the specifications call for it, and are apt to omit it until they get to the straight part of the flue. This makes the flue dangerous at its hottest point. Watch chimney construction carefully, and see that details recommended are not ignored by the mason.

Not more than two flues shall be permitted in the same chimney space, and the joints of the two sets of flue linings shall be offset at least 6 inches. When there are more than two flues in a chimney, each third flue must be separated from the others by a withe or division wall at least 4 inches thick and bonded into the side walls. This is necessary to insure stability of the chimney. It also prevents possibility of a fire in one flue involving the others. See Plate IV for details of proper chimney construction.

If chimneys are not lined, it is imperative that they be 8 inches thick, and all chimneys which serve as flues for large boilers or other large furnaces where very hot fires are maintained should have walls 8 inches thick and lined. Such chimneys are also recommended in localities subject to severe winters and where continuous hot fires are a necessity.

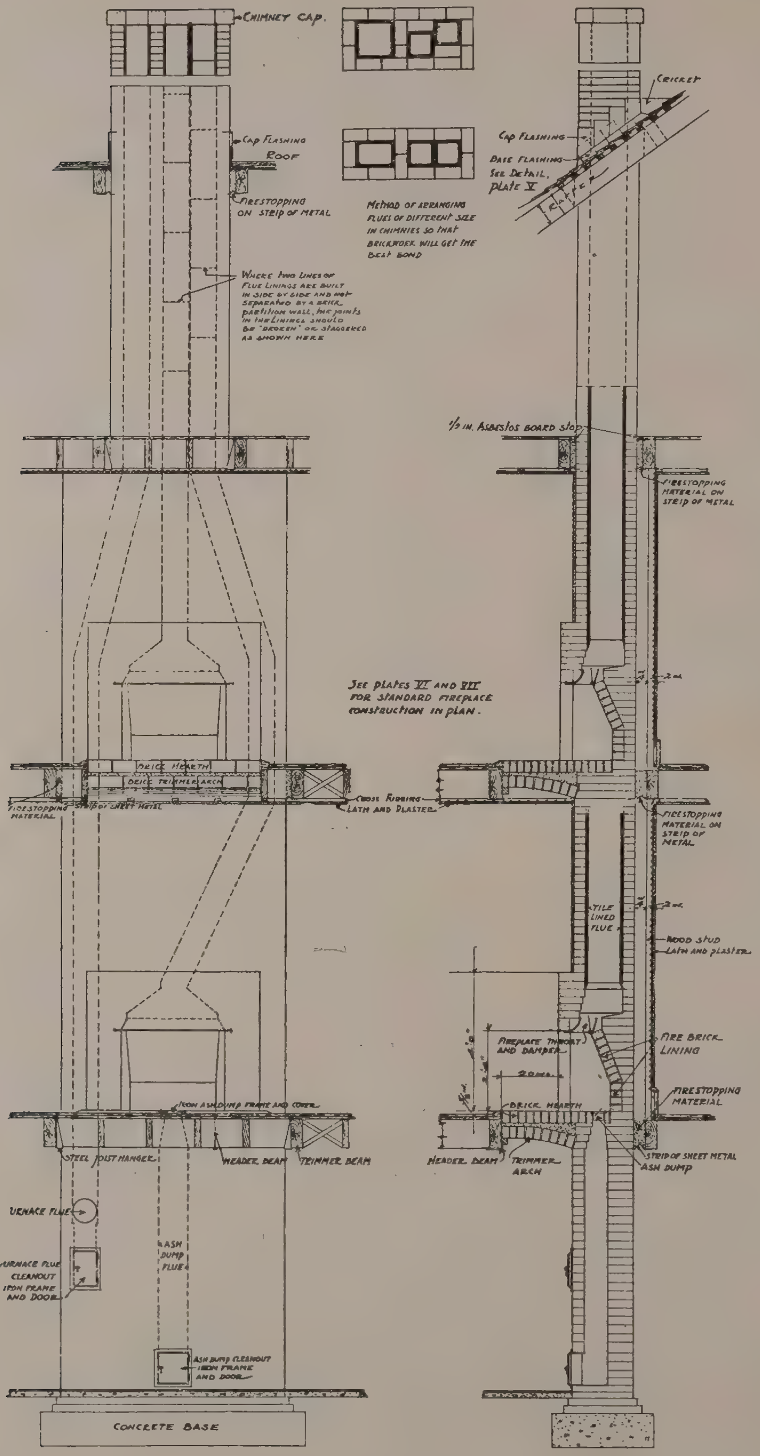
The walls of stone chimneys should be at least 4 inches thicker than required for a corresponding brick or reinforced concrete chimney.

Note. When concrete is used for a chimney it should be reinforced in both directions, otherwise it is liable to crack during setting of the cement, or due to temperature stresses, or unequal settlement of foundation.

Concrete blocks should not be used for chimney construction unless they contain substantial steel reinforcement running continuously around the blocks with the shell of the blocks not less than 4 inches thick, and the blocks continuously lined with best quality flue lining the same as a brick chimney.

Note. The use of concrete blocks in chimney construction is not recommended. While it is recognized that blocks suitable for this purpose are made by some manufacturers, it is also an unfortunate fact that the majority of this product used in construction of chimneys is quite unsuited to the purpose. Such blocks are carelessly made; often have defective mixture; frequently the materials are poor; and usually the curing is improperly done.

Aside from these defects of manufacture, the blocks are generally less than the minimum 4-inch thickness. In view of these well-known facts, extreme care should


CHIMNEY CAP.
Cap Flashing
Roof
Firestopping on strip of metal
Method of arranging flues of different size in chimnies so that brickwork will get the best bond
Where two lines of flue linings are built in side by side and not separated by a brick partition wall, the joints in the linings should be "broken" or staggered as shown here
Cap Flashing
Base Flashing See Detail, plate V
Cricket
Rafter
½ in. Asbestos board stop
Firestopping material on strip of metal
See plates VI and VII for standard fireplace construction in plan.
Brick Hearth
Brick Trimmer Arch
Firestopping material
Strip of sheet metal
Cross Furring
Lath and Plaster
Firestopping material on strip of metal
2 in.
Tile lined flue
Wood stud
Lath and plaster
Fireplace throat and damper
20 in.
Fire brick lining
Brick hearth
Firestopping material
Iron ash dump frame and cover
Steel joist hanger
Header beam
Trimmer beam
Header beam
Trimmer arch
Strip of sheet metal
Ash dump
Furnace flue
Furnace flue cleanout iron frame and door
Ash dump flue
Ash dump cleanout iron frame and door
Concrete base
Scale in Feet
0
1
2
3
4
5

-STANDARD CHIMNEY CONSTRUCTION-

ELEVATION

SECTION

PLATE IV.

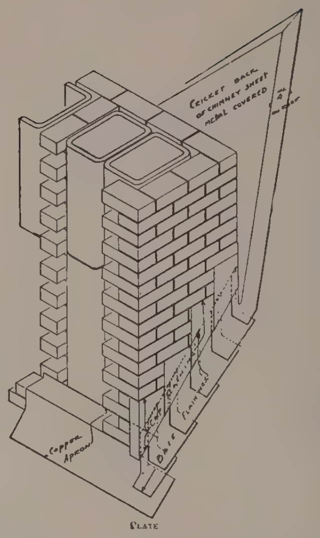


Plate V. — Details of chimney construction showing method of flashing at roof surface.

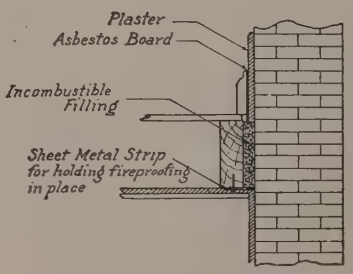


Plate VIII. — Detail showing support for fire stopping around chimney, and protection for woodwork placed next to plaster on chimney brickwork.

Plate IV. — Elevation and section of an interior independent chimney showing recommended construction. Extra flues can be added as desired.

be exercised in the selection and use of concrete blocks for chimney building. Owing to the large size of each block, especially if there be more than one flue in a chimney, the danger of cracking due to uneven settlement of foundation is increased even though the blocks be of good quality. This justifies the requirement for reinforcement.

The joints on the inside of all chimneys and flues shall be struck smooth. No parging mortar or plaster should be permitted.

Note. The plastering is liable to fall under the inflence of heat and weather, and not only choke the flue, but tear out the mortar between the joints of the bricks. Flue lining will prove the cheapest in the end, for it will maintain a smooth flue which is easy to clean and will discourage nest-building by chimney swallows.

It is recommended that a minimum flue area of 64 square inches be furnished where the fuel used is wood or coal. In some cases where a single medium sized coal stove is connected to a flue, an area of 56 square inches may be permissible. This can be secured by use of a 7½x 7½-inch flue lining which is one of the standard sizes.

Furnace and fireplace flues should be not less than 96 square inches in area, and for the latter 144 square inches would be a better minimum; greater areas are often necessary.

Note. A generous sized chimney produces a better draft; a poor draft is a great annoyance and is difficult to remedy after a chimney is built.

The walls of brick buildings when not less than 12 inches in thickness may form part of chimney or flue. In no case shall a chimney or flue be corbeled out more than 6 inches from the wall, and in all cases the corbeling shall consist of at least five courses of brick. Flues in party walls shall not extend beyond the center of the walls, and their location should be permanently indicated on both sides of the walls.

Build all chimneys from the ground up. None of their weight should be carried by anything except their proper foundations. Foundations should be at least 12 inches wider all around than the area of the chimney. The foundation for an exterior chimney should be started well below the frost line.

A chimney shall never rest upon or be carried by wooden floors, beams, or brackets, or hung from wooden rafters.

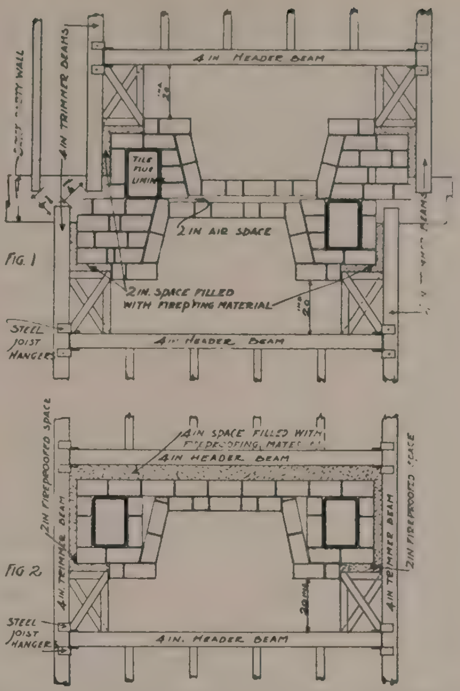


Plate VI. — Figure 1 shows the method of building two fireplaces back-to-back in a brick party wall to secure proper spacing between ends of floor joists. The space between backs can be filled if desired.

Figure 2 shows floor framing around a single fireplace. Note filling between framing and brickwork, which serves both as insulator and fire stop.

Note. Wooden construction is certain to shrink, and beams carrying heavy loads always deflect in time even though they may support the load without sign of distress when first applied. Settlement is sure to occur, and such movement not only injures the walls and ceilings of the house, but is very liable to crack the chimney and render it dangerous. Such chimneys are always several feet in height above the roof, thus offering considerable surface exposure, and owing to their unstable support they will sway in a heavy wind. This also tends to produce open joints at the roof line, which is a most hazardous place for sparks to issue as they come directly in contact with the woodwork.

Do not support chimneys on iron brackets or stirrups attached to wooden construction, however carefully devised. This practice is not uncommon, but is hazardous. Furthermore, a small fire around the base, from any cause, may drop the chimney and form a draft for rapid spread of fire.

Note. It is well known that steel begins to lose its strength at about 500 degrees Fahr., and at 1,000 degrees Fahr. approximately 50 to 70 per cent, of its strength is gone. Such temperatures are produced in an ordinary fire, and if maintained even for a short time are almost sure to produce collapse of exposed steel structural members.

When a chimney is to be cut off below, in whole or in part, it should be wholly supported by brick or stone work, or steel construction, properly erected from the ground up.

Piers which support chimneys shall start from the foundation on the same line with the chimney breast. They shall be not less than 12 inches on the face and shall be properly bonded into the walls.

Build all chimneys to a point at least 3 feet above flat roofs, and 2 feet above the ridge of peak roofs, and provide a proper capping of stone, terra cotta, concrete or cast iron.

NOTE. Unless brick chimneys be capped or the top bricks tied together in some secure manner, the mortar joints will loosen by the action of heat and weather, and in time will fall out. This will loosen the brick and form holes between them, thus making a place for soot to accumulate and render the chimney unsafe. Chimneys with plain tops will last longer and are safer than those with courses of brick corbeled out near the top for ornamental effect. The lack of good bond allows such brick to get loose and in time they are liable to drop.

Under no circumstances shall the brickwork of the chimney be extended out over the roof by the projection of the course of brick nearest to it.

NOTE. Such overhanging projection or shoulder will inevitably cause cracks in the chimney in case the chimney settles; the roof in such event lifting the upper portion of the chimney by means of the overhang or shoulder and causing a crack at the most dangerous of all places.

Connections between chimney and roof shall be made with sheet metal flashing, arranged to overlap and allow for movement that may occur between chimney and roof. See Plate V.

NOTE. Copper is the best metal to use. It costs but little more than tin or sheet iron, and will be permanent, whereas the latter will rust out and it is difficult to replace a flashing after it has failed. Zinc resists corrosion well, but melts easily, so in case of fire it would quickly disappear leaving a draft opening around the chimney, thus contributing to the spread of the fire. For the same reason lead should never be used.

Flues should be made as nearly vertical as possible to secure the best draft, and there should be but one connection to a flue.

NOTE. Fires are constantly occurring from having more than one connection to the same flue, the sparks passing from one opening through another.

Portland cement mortar only should be used in the construction of chimneys and flues.

NOTE. Portland cement mortar is very superior to lime mortar in resisting the action of heat and flue gases. The latter disintegrates in time, and is liable to fall out of the joints, thus producing a hole through which a fire is likely to originate. Some building laws specify that cement mortar need only be used for the foundation of a chimney and the portion exposed to the weather above the roof. This is unwise; for reasons stated above, the whole inside of a chimney exposed to heat, should also be built with cement mortar. Cement is much cheaper today than when such specifications were originally written, and considering the small amount of mortar necessary to build a chimney, the difference in cost between cement and lime is of small account compared with the superiority of the former.

Woodwork Around Chimney

No wooden beams or joists shall be placed within 2 inches of the outside face of a chimney or flue, whether the same be for smoke, air or any other purpose. No woodwork shall be within 4 inches of the back face of the wall of any fireplace.

All spaces between the chimney and wooden beams shall be filled with mineral wool, loose cinders, gypsum block, or other porous incombustible material.— See Plates IV, VI and VII.

NOTE.— The filling of dead air spaces around a chimney before the flooring is laid, is to form a fire-stop, and prevent an accumulation of shavings and other combustible material in them; also to avoid the danger of mice building nests there. The filling material should be porous, thus preserving the heat insulating advantage of the air cells; consequently brickwork, mortar or solid concrete, should not be used.

The incombustible material shall be supported by sheet metal set into the brickwork and nailed to the wooden beams and have a flexible joint between, as indicated in Plate IV; or flat metal nailed to the woodwork with the inner edge close to the chimney will serve the purpose. See Plate VIII.

The header beam carrying the tail beams of a floor and supporting the trimmer arch in front of a fireplace, shall be not less than 20 inches from the chimney breast.

Under no circumstances shall wooden studding, furring, or lathing be placed against any chimney; the wooden construction shall either be set back from the chimney as indicated in Plate VII, Figs. 3 and 4, or the plastering shall be directly on the masonry, or on metal lathing, or incombustible furring material which affords a surface for plastering.

NOTE.— It is recommended that a coat of cement plaster be placed directly upon the masonry of such portions of a chimney as are to be encased by a wooden partition or other combustible construction.

Baseboards or other woodwork fastened to plaster which is against the masonry of a chimney shall have a layer of asbestos board at least ⅛ inch thick placed between the woodwork and the plaster. See Plate VIII.

NOTE 1.— The practice of inserting wooden joists in the wall of a chimney, or of placing studding, furring, or other woodwork in contact with the wall is very risky, and should not be permitted under any circumstances.

NOTE 2.— When necessary to attach metal lath, either with or without metal furring strips, to a chimney wall, it is recommended that wire loops be embedded in the mortar joints at intervals as the chimney is being built. The lath can be easily and rigidly attached to these loops. Nails should never be driven into a chimney wall less than 8 inches thick; they are liable to break out the mortar on the inside and render the chimney defective.

Smokepipes

Next in importance to correct construction of a chimney, is proper installation and maintenance of smokepipes. Thousands of fires occur annually from defective smokepipes — usually the direct results of carelessness or neglect.

Smokepipes should always enter the chimney horizontally, and the connection through the chimney wall to the flue should be made with round tile or metal thimbles securely set in the chimney with cement mortar.

Flue holes when not in use shall be closed with tight fitting metal covers. Pasting paper over them is a very pernicious practice.

No smokepipe should be within 9 inches of any woodwork, or any wooden lath and plaster partition or ceiling.

Smokepipes for large cooking ranges, hot air furnaces, low pressure steam or hot water boilers shall be not less than 18 inches below any wood lath and plaster or other combustible ceiling, unless at least the upper half of such smokepipe is properly protected by 1 inch or more of asbestos covering or its equivalent, or by a metal casing spaced 2 inches from the upper half of the pipe. If so protected such smokepipes shall be not less than 9 inches from any wood lath and plaster construction, or 12 inches from unprotected woodwork or other combustible material.

Where a smokepipe passes through a wooden lath and plaster partition, a section of the partition shall be removed and the pipe shall be protected from the woodwork of the partition by a galvanized iron, double walled, ventilated thimble having a diameter not less than 12 inches larger than pipe; or by at least 4 inches of brick work or other incombustible material.

Smokepipes should not be permitted to pass through floors, nor through closets or other concealed spaces.

A smokepipe shall never pass through a roof having wooden framework or covering.

A smokepipe shall never enter a chimney in the attic or garret.

Every smokepipe should be thoroughly cleaned at least once each year, and if in practically continuous service, they should be cleaned twice a year.

Smokepipes should be securely anchored in position by tightly drawn wires. This is very important.

Fireplaces

The walls of fireplaces should never be less than 8 inches thick, and if built of stone the minimum thickness should be 12 inches.

It is advisable that the backs of all fireplaces be lined with fire brick or cast iron. When a grate for burning coal or coke is set in a fireplace, it is imperative that a lining of fire brick at least 2 inches in thickness shall be added to the fireback; or soapstone, tile or cast iron may be used, if solidly backed with brick or concrete. Furnace and fireplace flues should not be less than 96 square inches in area, and for the latter 144 square inches would be a better minimum.

All fireplaces and chimney breasts where mantels are placed, shall have trimmer arches or other approved fireproof construction supporting hearths. The arches and hearths shall be at least 20 inches in width measured from the face of the chimney breast. The arches shall be of brick, stone, terra-cotta, or reinforced concrete, not less than 4 inches in thickness. A flat stone may be used to carry the hearth instead of an arch, if it be properly supported and a suitable fill be provided between it and the hearth. The length of the trimmer arch and of the hearth shall be not less than the width of the chimney breast. The hearth shall be of brick, stone, tile, or concrete. False fireplaces should only be permitted against unfurred masonry walls.

Wood centering under trimmer arches shall be removed before plastering the ceiling underneath.

No coal burning heater shall be placed in a fireplace which does not conform to the foregoing requirements and have an incombustible mantel. No wood mantel or other woodwork shall be placed within 8 inches of the side nor within 12 inches of the top of any open fireplace. No combustible summer piece or fireboard shall be used in connection with any open fireplace.

Provide a substantial spark screen for all wood-burning fireplaces. For construction of fireplaces and flues, see Plates IV and VI.

Heating and Lighting Equipment

PROTECTION OF BOILERS, FURNACES AND RANGES

Low pressure heating boilers, hot air furnaces, laundry stoves and coal ranges, without legs, and similar appliances, where hot fires are used, shall rest upon incombustible foundations wherever possible. When necessary to be placed upon wooden floors, the floors shall be protected by sheet metal or a ⅛ inch layer of asbestos board or building lumber, covered with not less than 4 inches of masonry set in cement mortar.

Any woodwork or wooden lath and plaster partition within 4 feet of the sides or back, or 6 feet from the front of any such boiler, furnace, or heating appliance, shall be covered with metal shields or other approved incombustible material to a height of at least 4 feet above the floor. This covering shall extend the full length of the boiler, furnace, or heating appliance, and to at least 5 feet in front of it. Metal shields shall be so attached as to preserve an air space behind them. Combustible construction when properly protected, shall be not nearer than 2 feet to the sides or back of the heating appliance, or 5 feet to the front of same.

Heating boilers shall be encased on sides and top by incombustible protective covering not less than 1 inch thick, and at least the tops of all hot air furnaces shall be covered in the same manner. The overhead clearance of such covered boilers and hot air furnaces shall be not less than 15 inches. Any woodwork within 2 feet of the top of such boiler or furnace shall at least be protected by a loose fitting metal shield arranged to preserve an air space between the metal and the wood.

Fire-Stopping

THE NECESSITY FOR FIRE-STOPPING, AND SUITABLE MATERIALS TO USE

No one feature of house construction will contribute more to its safety in case of fire than efficient well placed fire-stops. Their purpose is to delay the spread of fire and so assist in confining it to the story in which it starts. This protects life, and affords a better chance of extinguishing the fire.

Fire-stops are principally applicable to nonfireproof buildings, though they should be used in any type of building where openings exist which would act as flues to distribute heated air or gases from a fire in one part of a building to other portions where they might ignite combustible material. The added cost of such protection is very slight, and yet its value is so little appreciated, the ordinary dwelling either has no fire-stopping at all, or else the work is so indifferently done as to be practically worthless. Because such work does not show when a building is completed, and because its importance is usually entirely underestimated, it is common to delegate it to a boy, or some careless incompetent person. The result is that the fire-stop is so in name only; it being merely a delusive imitation which if called upon to fulfill its purpose, fails completely. Such work does not call for any high degree of mechanical skill, but it is absolutely necessary that it be done by an intelligent conscientious workman if it is to be efficient.

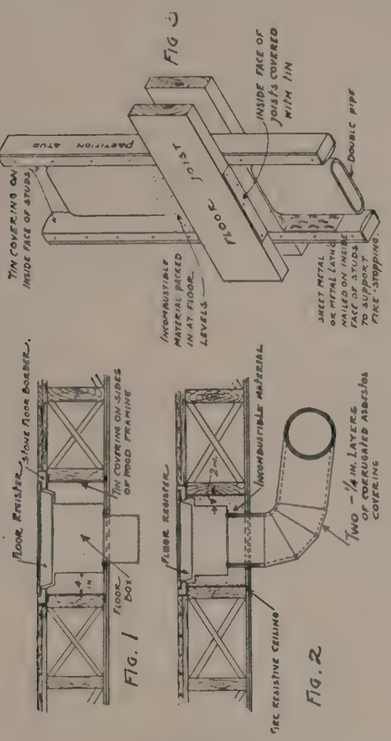


FIG 3
INSIDE FACE OF JOISTS COVERED WITH TIN
PARTITION STUD
FLOOR JOIST
DOUBLE PIPE
TIN COVERING ON INSIDE FACE OF STUDS
INCOMBUSTIBLE MATERIAL PACKED IN AT FLOOR LEVELS
SHEET METAL OR METAL LATH NAILED ON INSIDE FACE OF STUDS TO SUPPORT FIRE-STOPPING
STONE FLOOR BORDER
FLOOR REGISTER
TIN COVERING ON SIDES OF WOOD FRAMING
4 IN
FLOOR BOX
FIG. 1
FLOOR REGISTER
2 IN.
INCOMBUSTIBLE MATERIAL
TWO – 1/4 IN. LAYERS OF CORRUGATED ASBESTOS COVERING
FIRE RESISTIVE CEILING
FIG. 2

PLATE XXI.

Fig. 1. — Method of fire-stopping around floor register. Note register box extended to line of ceiling projection which simplifies installation.

Fig. 2. — A more complete method of fire-stopping, and one well suited for existing buildings.

Fig. 3. — Isometric sketch showing method of fire-stopping between floor joists around a hot air pipe carried up in a partition.

The danger resulting from careless workmanship is greater in the construction of wooden fire-stops than when incombustible material is used. The reason for this is, that as the spaces between studs and joists vary somewhat, and as odd ends of timber are used for the purpose, it often happens that the opening supposed to be filled is really not completely closed. There will be a space of ¼ to ½ inch due to a stop-piece happening to be that much short of the correct length, but which is considered "good enough" for the purpose. Another cause for openings at the ends, is that if the end of a stop-piece is not square, a careless person will consider it too much trouble to saw it to fit; or a stud or joist may be warped, or not set squarely, and unless the stop-piece is carefully fitted an opening will be left. The same defects exist at the sides of the stop-pieces, and as all such joints are sure to widen somewhat due to shrinkage, it is extremely important that such fire-stopping be snugly fitted. If wooden fire-stopping be used for walls or partitions, an intermediate stop shall be placed between the studs midway between floor and ceiling.

Incombustible fire-stopping material, such as mineral wool, concrete, or mortar, is soft when used, and is more or less tamped or pressed into the space prepared for it. This usually forms tight joints on all sides, even though the work be indifferently done. Material similar to mineral wool which is packed in place and does not harden will have a tendency to expand and fill any space that may later be formed by the shrinkage of the timber, which is an advantage. The necessity for having tight joints is to prevent the passage of air or gases which have been heated to the point of combustion.

Construction of Fire-Stopping

Fire-stopping shall be arranged to cut off all concealed draft openings, and form an effectual horizontal fire barrier between stories. Open passages in frame walls or partitions are a prolific cause for rapid spread of fire to all parts of a structure. If fire occurs in the cellar or basement, they act as flues to carry it to the attic. If the fire starts in the attic the sparks fall down the hollow spaces. Results are disastrous in either case.

Furred Walls.—For all walls furred with wood the masonry between the ends of wooden beams shall project the thickness of the furring beyond the inner face of the wall for the full depth of the beams; or a double course of bricks or other masonry above and below the beams shall project beyond the face of the wall the full thickness of the furring. Plate XII. Such fire-stopping in hollow block walls is usually obtained by using 1-inch slabs of the same material, the slabs serving also as the bearing course for the floor joists. Where floor beams are parallel to a wall furred with wood, there shall be a space of not less than 2½ inches between such wall and the nearest beam. This space shall be filled in solidly with brickwork or concrete for the full depth of the floor beams, or be equivalently fire-stopped.

NOTE.— Two courses of bricks, slabs, or other masonary, are required to cut off a furring space, for mortar joints may drop out of a single course and render it useless.

Incombustible furring is excellent since it entirely prevents a fire creeping along a wall from one story to another behind the plaster. Terra-cotta or gypsum furring blocks or tile are much used and are quite satisfactory. They have a series of grooves in the back face which affords the necessary air space between the wall and the plaster. Plate XII, Figs. 4 and 5. There are also several styles of metal furring strips to which metal lath is attached, and so serve the same purpose. Where walls are likely to be damp, terra cotta furring would probably be most satisfactory. All these forms of furring should be fire-stopped with mortar a few inches at the bottom to prevent possibility of their acting as flues for heated gases and bringing them in contact with wooden construction in the floor above.

Walls Studded-off.— Where walls are studded-off, the space between the inside face of the wall and the studding at the floor level shall be fire-stopped with incombustible material. The beams directly over the studded-off space shall be deadened with not less than 4 inches of incombustible material, which shall be laid on boards cut in between the beams; or better still, use 4-inch solid gypsum plaster blocks cut to fit the space between the beams and supported by cleats, thus avoiding the board supports. The underside of such beams shall be protected by a covering of metal lath or plaster board, and plastered to a total thickness of ¾ inch, or a double layer of ¼-inch asbestos mill board with broken joints. Plate XIII.

Frame Walls.— In frame buildings which are to be lathed and plastered or otherwise sheathed on the inside, all stud walls shall be completely fire-stopped with brickwork or other suitable incombustible material at each floor level. The spaces between the studs shall be filled to a height of 4 inches above the floor level. Plates XIII and XIV.

Partitions.— Where stud partitions rest directly over each other and cross wooden floor beams at any angle they shall run down between the floor beams and rest on the top plate of the partition below, and shall have the spaces between the studding filled in solid to at least 4 inches above each floor level with approved incombustible materials.

There are some places in wooden construction such as a fire-stop along the top of a brick partition over which a floor is laid in the story above, see Plate XIII, Figs. 2 and 5, where wooden fire-stopping, or a compressible incombustible material, such as mineral wool, must be used otherwise the shrinkage of the timber construction will in time cause the floor to bulge. A course of brickwork resting on the foundation wall and built between the end of the joists is a method of fire-stopping frequently recommended as an addition to a wall stop such as shown in Plate XIII, Figs. 1 and 3. Such brickwork, if built snugly against the underside of the floor, as it should be, is likely to deform the floor when the timber shrinks. If the wall stopping is effectively done with incombustible material, it is doubtful whether such secondary stop is necessary.

Roofs.— Dwellings within 10 feet of other non-fireproof buildings, shall have the walls behind eaves or cornices fully fire-stopped to prevent fire from a near-by building breaking through into the attic space. Such fire-stopping will also protect against fire which might lap up under the eaves through the windows from a fire within.

Cornices and Gutters.— Combustible cornices are always troublesome in case of fire. They catch fire easily, are usually dry and so burn freely and a fire travels through them rapidly.

Incombustible cornices are safest. Even though the frame work be of wood, it is wise to cover the exterior surface with incombustible material where practical. Metal lath and cement plaster or stucco could be used on flat surfaces on underside of cornices.

Cornices built of wood or having wooden frames on rows of buildings, shall be either fully fire-stopped between each building, or shall be completely separated.

Note.— It is a common occurrence for a fire in a row of dwellings to communicate to several buildings through the cornice; it is much safer to make them entirely independent and it is so recommended.

Piazzas.— It is important that stud walls back of or over piazzas, should be fully fire-stopped in manner indicated in Plate XIX.

Note.— Fire chiefs report that fire from a burning piazza is frequently carried through stud walls to the attic or upper story of a house and becomes the cause of complete destruction of the building, which otherwise might have been saved.

Sliding Doors.— When sliding doors are pocketed in partitions such pockets should be completely fire-stopped at sides, top and bottom. Asbestos mill board, or plaster board is suited to this use.

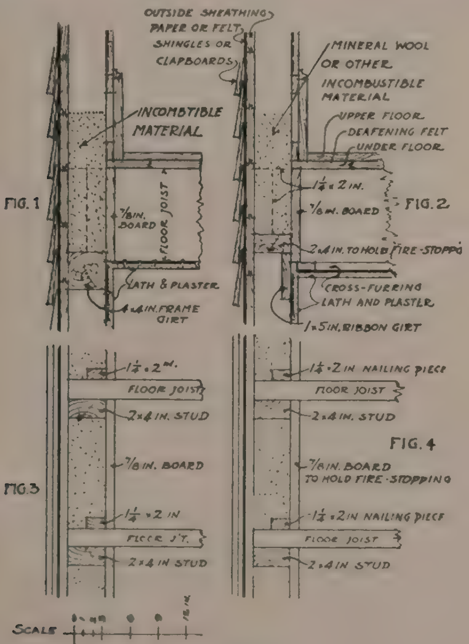


Plate XIV.

Figs. 1 and 3. — Elevation and plan showing fire-stopping in frame wall at connection of upper floor joists with girt.
Figs. 2 and 4. — Fire-stopping at same place for "balloon frame."

Wainscoting.— The surface of the walls or partitions behind wooden wainscoting and dados, shall be plastered flush with the ground and down to the floor line. The same stopping shall be placed behind all applied wooden trim, such as fancy wooden paneling.

Stairs.— The space between stair carriages shall be fire-stopped by a header beam at top and bottom. Where a stair run is not all in one room, or where a closet is located beneath the stairs, the stair carriages should have an intermediate fire-stop, so located as to cut off communication between portions of the stairs in different rooms, or between the closet and the room in which it is placed. Such stops can best be made of plank.

If a flight of stairs is so arranged as to be the only construction separating two stories at the place where they are located, as for example between the cellar and the story above, the underside of the stairs should be covered with metal lath or ½ inch plaster board and plastered to a total thickness of ¾ inch.

Ducts and Chases.— Ducts, chases, or shafts for pipes, wires, speaking tubes, and for similar purposes, shall be fire-stopped at each floor with mortar or other incombustible material so as to form tight joints.

Water, Gas and Plumbing Pipes.— All exposed pipes passing through any floor or wall shall have the surrounding air space closed off at the ceiling and the floor line, or on each side of the wall by close fitting metal caps. Wherever possible they should be surrounded by mortar or other close fitting incombustible material which does not conduct heat like metal. In fireproof construction it is preferable to have the pipes or shafts fit neat in the floor or wall.

Hot Air Pipes and Registers.— Where a furnace hot air pipe passes through a floor, the space between the pipe and floor construction shall be filled with incombustible material supported by sheet metal or metal lath. A light porous material, such as mineral wool is best suited to the purpose. Plate XXI, Fig. 3.

The space between a register box set in a floor and the casing protecting the floor construction, shall be filled with similar incombustible material. This shall include the space around that portion of the hot air pipe attached to the register box down to the bottom of the joists in wooden floor construction, and a layer of sheet metal shall surround the pipe and be securely nailed to the underside of the joists to support the fire-stopping. When a register box is fire-stopped in this manner, the space between the box and the casing may be reduced to 2 inches; otherwise it should be 4 inches. If the ceiling has a protected covering as elsewhere recommended, it should be made to cover the space and surround the pipe. Plate XXI, Fig. 2. When a space of 4 inches is provided on all sides of a floor register box, and the surrounding woodwork is encased in metal, the fire-stopping may be omitted, provided the cellar or furnace room ceiling be completely protected by a covering at least equal to the minimum grade, according to the following specifications, and that this covering fits snugly around the pipe connection as indicated in Plate XXI, Fig. 1.

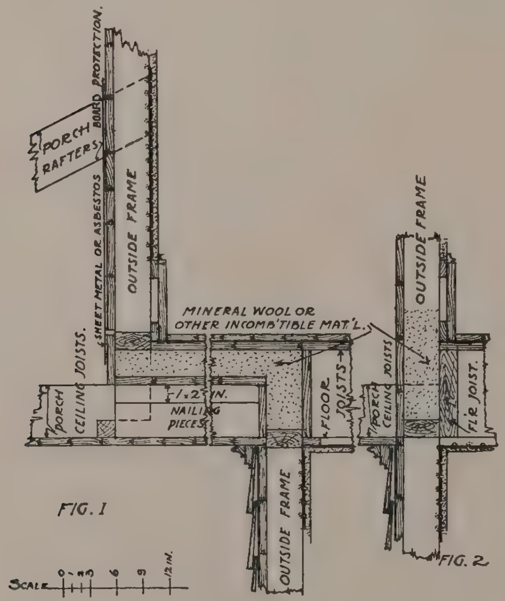


PLATE XIX.

Fire-stopping over piazza roof. See Section 55, par. 10.

Fig. 1. — Section through an outside frame overhanging at second floor level, with ceiling joists and rafters of a piazza framed into it. Method of fire-stopping over ceiling joists, also for outside of frame wall under porch roof.

Fig. 2. — Section through a flush frame with piazza ceiling joists finishing against it, and method of fire-stopping. Wall above should be protected as indicated in Fig. 1.

The fire-stopping would be more positive if the space were filled, and this is recommended wherever possible to obtain it.

The minimum ceiling protection is a galvanized metal lath not less than No. 24 gauge, covered with ¾ inch asbestos or cement plaster; or the joists may be covered with strong plaster board not less than ½ inch thick (fiber plaster board preferred), and coated with ¼ inch of gypsum plaster; or the plaster board may be covered with sheet metal. If sheet metal covering be used, the joints between the sheets of plaster board must be first filled with plaster to form a smooth surface with no wood exposed. If the joist spacing is such that the sheet metal can be laid parallel to direction of joists and lap upon them, it is advisable to do so. For convenience in nailing, the location of joists should be marked on the plaster board as it is laid. Heavy nails, not less than 2 inches long should be used to attach the metal, with a spacing not exceeding 4 inches. When it is necessary to place furring strips on the plaster board to support the sheet metal, it would be useless to use nails longer than would penetrate the strips, but care should be taken to use heavy nails wherever possible to hit a joist. Warping of the metal when attacked by fire, and charring of the wood around the red hot nails, will cause small nails to pull out and allow the metal to fall. For the same reasons metal lath should be attached with long heavy staples. Metal ceilings are not advised in cellars or basements, which are liable to be damp when the heating equipment is out of commission. Corrosion may make them worthless in time.

When a register is connected to a brick hot air shaft, the space required between the outside of the shaft and the wooden floor construction shall be fire-stopped in like manner.

NOTE.— This fire-stopping is important, but seldom done. Any such space should be fire-stopped irrespective of floor construction. In fire-proof floor construction, register boxes should fit the floor opening snugly, and so make fire-stopping unnecessary. The protection of wood work as elsewhere required around a register, will safeguard the wood from the heat of the pipe itself, but the open space provided around the pipe and register box forms an easy entrance for fire occurring in the lower story to gain access to the story which the register serves. The hot air pipe and its connection will get red hot and communicate fire to combustibles surrounding the register face, such as parquet floors, carpets, rugs and furniture. If the register box has soldered joints they will open, and a passageway for flame be formed. It is futile to enclose stairways and protect ceilings as elsewhere provided unless all other openings such as these are adequately closed.

The greatest hazard is in the cellar or basement where the furnace is located. There is an additional danger from the hot air pipes themselves. Such pipes leading from the furnace if not protected would in case of a fire become intensely hot and burn the dust which invariably accumulates in such devices, thus making a flash fire, and there would be great danger of the fire being communicated to the floor above, even though the pipes and registers were fire-stopped at the floor openings. For this reason the pipes, and the furnace itself, should be fully covered with cellular asbestos or equivalent incombustible material at least ½ inch thick for the pipes, and 1 inch for the furnace. Such covering is inexpensive, and reduces coal bills by conserving the furnace heat. It is much used for this purpose alone. The covering is manufactured for the purpose, and sold in rolls. It is ¼ inch thick, and should be used in double layers with broken joints. Suitable metal bands to hold it in place are supplied.

It is common practice to simply cover hot air pipes with a sheet of thin asbestos paper pasted to the pipe. Such protection is merely a pretense. It may have a little value as a heat insulator, but has practically none as a fire-resistant. It deserves no consideration.

Chimneys.— Connection between chimney and roof shall be made with sheet metal flashing, arranged to overlap and allow for movement that may occur between chimney and roof. See Plate V.

No wooden beams or joists shall be placed within 2 inches of the outside face of a chimney or flue, whether the same be for smoke, air or any other purpose. No woodwork shall be within 4 inches of the back face of the wall of any fireplace.

All spaces between the chimney and wooden beams shall be filled with mineral wool, loose cinders, gypsum block, or other porous incombustible material. See Plates IV, VI and VII.

No fire-stopping should be in any manner concealed from view until opportunity has been given the owner or his representative to inspect same. This is particularly important when work is done under contract.

Although it would not be practicable to fire-stop an existing house as completely as here recommended for new construction, nevertheless it would be quite feasible to apply several of the suggestions to any existing house in which such barriers had been omitted, and would materially lessen the fire risk.

THE CHOICE OF BUILDING MATERIALS FOR INDUSTRIAL HOMES

"Evolution and experience have pointed to the frame house as the 'fittest survivor' of the exacting conditions in New England. It is cheap, warm, dry, easy to build, to enlarge or alter. It is practically as safe from conflagration as a house with exterior walls of masonry if built with fire-resisting roof and with proper space between houses. No other kind of construction offers the same combination of advantages. Masonry offers less resistance to cold and heat, as engineers have proved. It is not so dry. It is more difficult to enlarge or alter, and presents more work in building, especially in winter. It costs more, though somewhat cheaper to maintain."— *William Roger Greely, the architect, in "Housing the Low Paid Workman," an article written in connection with the housing development of the Massachusetts Homestead Commission.*

THERE are about 140 distinct or related species of wood found in the United States which are important as sources of commercial lumber. Of these 140 species, a few have only local fields of usefulness; many are more or less well suited to a variety of structural or manufacturing purposes, but their supply is limited. Among the commercial woods, Southern pine is unique in that it not only is the most plentiful wood, but it is adapted to a greater variety of uses than any other wood that grows.

Although definitely restricted in the area of its growth, the qualities and adaptability of Southern pine are so varied that its distribution is limited only by the confines of civilization and the facilities for transportation. In America its place in manufacture and building construction is such that approximately 40 per cent of all the lumber consumed is Southern pine, while in normal times enormous quantities go to Europe, South America and Africa. More than 2,000 sawmills are running every working day in the year to supply the demand for Southern pine, the annual production of which is normally in excess of 14 billion board feet — nearly three times as great as that of any other one wood and equal to the combined production of the four other most useful woods.

"Southern pine" is the generic name for a number of more or less closely related species, including "longleaf pine," "shortleaf pine," "Cuban pine" and "Loblolly pine," as well as various representatives of these species familiar to the trade as "Georgia pine," "hard pine," "yellow pine," "Arkansas soft pine," etc. "Longleaf" Southern pine is commonly used for framing, heavy timbers, trestles, trusses, etc.,— wherever the requirements demand superlative strength; "shortleaf" Southern pine is more generally used for interior finish and wherever extraordinary strength is not a consideration. In ordinary home construction, however, both varieties are commonly used without discrimination. Of the Southern pines the United States Forest Service says in Circular 164, "Properties and Uses of the Southern Pines:"

> "Material for construction purposes is chosen for its strength, stiffness and durability. Longleaf pine possesses these properties to such a high degree that it has long been the standard structural timber in the United States. . . . Longleaf pine is unsurpassed as a structural timber, and finds a wide use in bridge, trestle, warehouse and factory construction in the form of dimension timbers, posts, piles and joists. It makes an excellent material for spars and masts, large quantities being exported to England for such use. In the building of railroad cars longleaf pine is largely used on account of its strength and stiffness. It is also employed to a large extent for flooring, on account of its hardness and wearing qualities.
>
> "Shortleaf and Loblolly are used principally for building lumber, such as interior finish, flooring, ceiling, frames and sashes, wainscoting, weatherboarding, joists, lath and shingles. . . . "

The Use of Southern Pine in Home Building

Southern pine is particularly recommended for use in home building, not only because it is more plentiful and lower priced than any other wood of anything like its high quality, but because of its remarkable adaptability. No other wood is universally used for every requirement in building large and small structures — for framing where strength and rigidity are essential; for exterior trim and finish, where durability and resistance to weather-wear are important considerations, and for interior trim, where beauty of grain, workability and compact texture are requisites. It is, in fact, the only wood that is extensively manufactured into every form of material used in home building — for framing timbers, for siding, for shingles, for lath, for flooring, for columns, for newel posts and stairs, for panels, baseboards and mouldings, for doors and door casings, for window casings,— everywhere and for every purpose wood is used.

Southern pine is regularly carried in stock by lumber dealers everywhere east of the Rocky Mountains. It is comparatively inexpensive because it is so plentiful. It is most economical, not only in first cost, but because it is capable of giving a lifetime of honest service wherever wood is properly used.

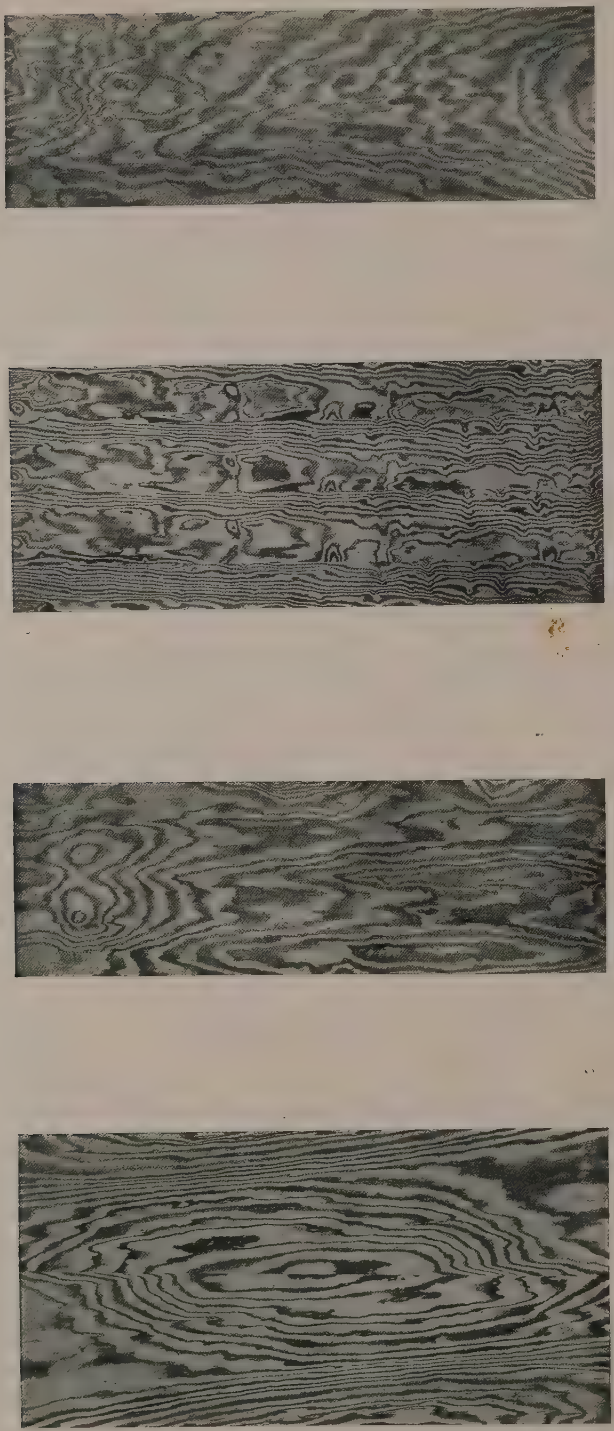
The Interior of the Home

A tremendous impetus has been given the use of Southern pine for interior trim by recent improvements in the methods of treating this wood with paints, stains and enamels. Southern pine has long occupied a position of first importance for interior use — for "standing trim" and floors — in home building where the natural light color of the wood was in harmony with the decorative scheme employed; in some instances, however, other and more expensive materials were employed to obtain darker and more varied effects, because the user did not appreciate the fact that Southern pine might be stained any tone or color desired. Even painters and some manufacturers of colors and varnishes at one time were of the opinion that Southern pine was "a hard wood to paint." Paint manufacturers realized, however, that this wood was of such importance that it merited special study, with the result that slight modifications in the methods of treatment completely eliminated any difficulties that formerly existed. It is now understood by paint makers, as well as by well informed architects, painting contractors and professional builders everywhere that Southern pine, properly treated, not only may be stained to any desired shade, thereby retaining all of the beauty of the natural grain of the wood, but that it takes and holds perfectly and permanently every variety of paints and enamels. The "special" treatment required is of the simplest character, differing but little (and with no extra expense) from that governing good workmanship in finishing others of the leading building woods. And by the intelligent observance of these rules in the use of Southern pine for interiors it is easily possible to produce all the richness and variety of rare hardwoods, and at a cost much less than would be entailed in the employment of any other variety of anything like the same intrinsic merit. This fact is now so generally conceded that Southern pine is being employed more and more for interior trim in the most important buildings and the finest homes, as well as in structures of a more modest character.

Full instructions, prepared by national authorities, for finishing Southern pine exteriors and interiors are contained in the Southern pine Association booklets, "The Interior of Your Home" and "Beauty Plus Service in Floors." These are mailed free upon request.

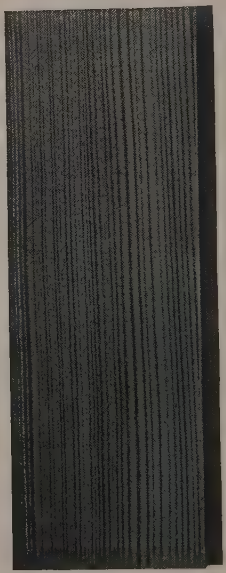
Quality Floors of Southern Pine

If you are not already a user of Southern pine flooring, we ask that you disabuse your mind of any possible idea that this material is in any sense a "makeshift" or "cheap" substitute for the hardwoods commonly used in the past for high-class floors. The better grades of Southern pine edge-grain (or quarter-sawed) flooring, as manufactured today, not only have all the good qualities of the higher priced hardwoods,



Southern Pine Panels, showing the remarkably varied and beautiful grain of the wood

A door of "curly" Southern Pine



Edge-grain (quarter-sawed) Southern Pine Flooring, the last word in beauty and durability

Southern Pine is a Wood of Infinite Variety of Grain but in some respects are distinctly superior to them. The lower cost of Southern pine flooring as compared with other woods suited to such use, is due to the fact that Southern pine is very plentiful, *not* that it is in any way inferior.

Southern pine flooring has an exceptionally handsome, even grain, a compact, velvety texture, and a pleasing natural color. If a darker color is desired, this material, properly treated, takes and holds stains perfectly, so that it is possible to obtain any shade or tone suited to your taste or requirements.

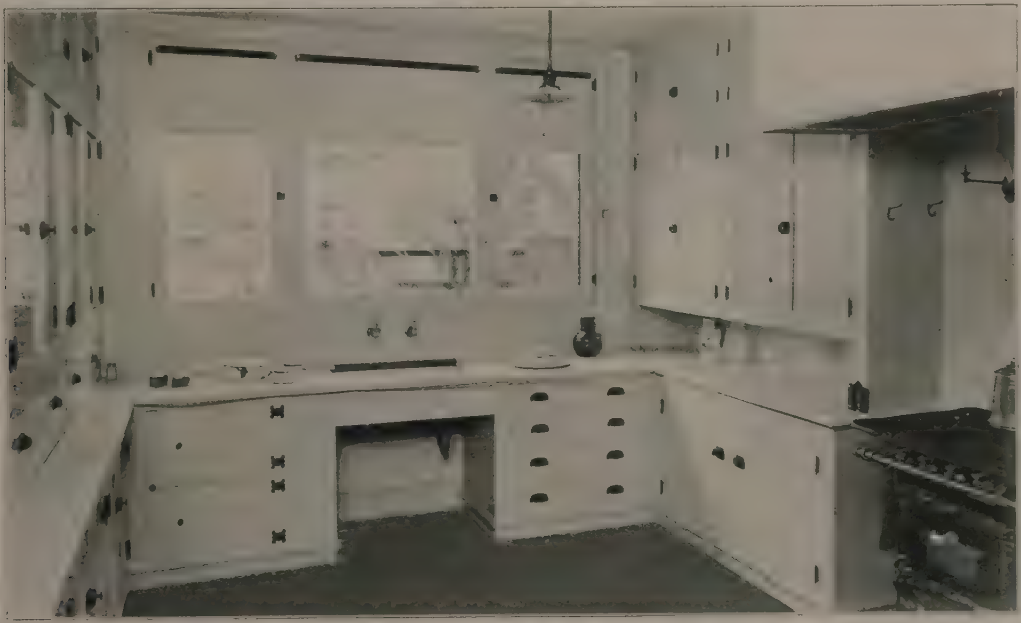
Because of the "close," compact grain of Southern pine it makes a smoother floor, more easily finished than do some hardwoods in common use. Furthermore, this close, even grain presents a surface that resists wear as effectually as any hardwood and that will withstand decay longer than any other wood used for flooring.

Southern pine flooring, unlike much other flooring material, has comparatively few short lengths. That feature, combined with its superior workability, makes it exceptionally easy and economical to handle and lay.

Dependability of Southern Pine Grades

More than 220 of the largest Southern sawmills are subscribers to the Southern Pine Association, and the lumber production of these mills exceeds 5 billion board feet annually. The quality of the Southern pine they market is absolutely guaranteed under grading rules adopted as standard by the Association, the United States Government, the American Society for Testing Materials, and by the lumber trade generally. The density rule, devised by the United States Forest Service is for determining the strength of Southern pine timbers used in heavy construction, and is an infallible, yet simple, guide in the purchase of material that is to be subjected to extraordinary stresses. There are special rules for grading car material and other special sizes of lumber, and a complete and rigid system for grading all material used in homebuilding.

That these grading rules may be thoroughly understood and intelligently enforced the Southern Pine Association maintains a staff of seventeen expert lumber inspectors. Eleven



Probably more Southern Pine is used for trim in sanitary kitchens and pantries than all other woods combined. That is because Southern Pine not only is most economical, but its dense grain prevents the absorption of fumes from cooking and it takes and holds perfectly enamel paints, the popular kitchen finishing materials.

of these men are constantly in the field among the mills, six of them dividing their time among the mills west of the Mississippi River and five with mills east of the river. All of their energies are devoted to maintaining uniform grading methods and instructing mill employees in the interpretation and application of the standard grading rules.

There are eight of the official inspectors permanently in the Northern consuming territory. The business of these inspectors is to investigate any complaints which may be registered by receivers of Southern pine lumber who may believe that they have not received the proper tender according to the standard grading rules; and, on request, these experts will supervise the inspection of lumber delivered on large orders to private users anywhere. These precautions are amply sufficient to fully protect users of Southern pine who will take the precaution to use care in the specification of grades ordered and to avail themselves of the co-operation of Southern Pine Association inspectors.

Informative Literature Published by the Southern Association

Among the many helpful publications issued by the Southern Pine Association, the following are of especial value to the large user of that material. Any of them will be sent gratis, promptly on request.

Standard Grading Rules for Southern Pine.
Car Material Specifications.
Table of Southern Pine Weights and Freight Deliveries.
The Interior of Your Home. (Rules for Finishing.)
Beauty Plus Service in Floors. (Rules for Finishing Floors.)
School Architecture (The Pavilion Type School).
Manual of Standard Wood Construction (Technical).
Floors of Service (Creosoted Southern Pine Wood Blocks).
Standard-Mill Construction (Technical).
List of Southern Pine Association Subscribers.
Timber Trestles and Bridges (Technical).

The living room of a home in the exclusive Country Club district, Kansas City. In this room all of the trim (finished in old ivory enamel) and the floor are of Southern Pine.

SCHOOL HOUSES

THAT COMBINE THE FEATURES OF ECONOMY, UTILITY, SAFETY AND ARCHITECTURAL BEAUTY

ARCHITECTURAL design in school buildings in this country outside the large cities seemingly has been limited in the past to very meager expression — the types commonly seen being restricted, in fact, to just two. In new and sparsely settled neighborhoods the first school buildings have been of the plainest and most primitive character, mere square "boxes," gable or hip-roofed, and innocent of embellishment within or without. As the communities have grown and the school population increased, the early "rural" buildings have been succeeded by pretentious imitations of "city" schools, scarcely more attractive structures of brick or stone, two or more stories in height and not remarkable for their convenient arrangement. When in course of time one of the larger structures no longer would meet all the requirements of the population, more buildings of the same type were erected.

Believing there is much room for improvement in present methods of housing school children, the Southern Pine Association inaugurated an architectural competition by which it was hoped to show that school buildings of the most moderate cost, as well as those suited to the accommodation of relatively large numbers of pupils, might be made to combine beauty with simplicity, and at the same time possess advantages of convenience not found in the commonplace, hackneyed school architectural forms. To this end the Association sent out a general invitation to architects, offering cash prizes for the best designs for what has been styled the "Pavilion Type" school building. Herewith are presented the first, second and third prize designs submitted in that competition, chosen from a great many entries submitted from all parts of the country, and reproduced from the Association booklet, "School Architecture."

What the "Pavilion Type" Is

The Pavilion Type school building is a one-story structure, designed to be built in units around an open court, these several units to be connected by covered cloisters. The plan lends itself particularly to the needs of rural communities, towns and small cities, because it provides for class room space only as it is needed. Beginning with a single unit building, other units are to be added to meet requirements of the growing school population until the entire cycle is completed, forming an architecturally harmonious whole that encloses the school playground. Among the special advantages of the Pavilion Type school are:

Latitude in design of the various units, giving the architect the opportunity to create structures that are artistically pleasing, as well as practical.

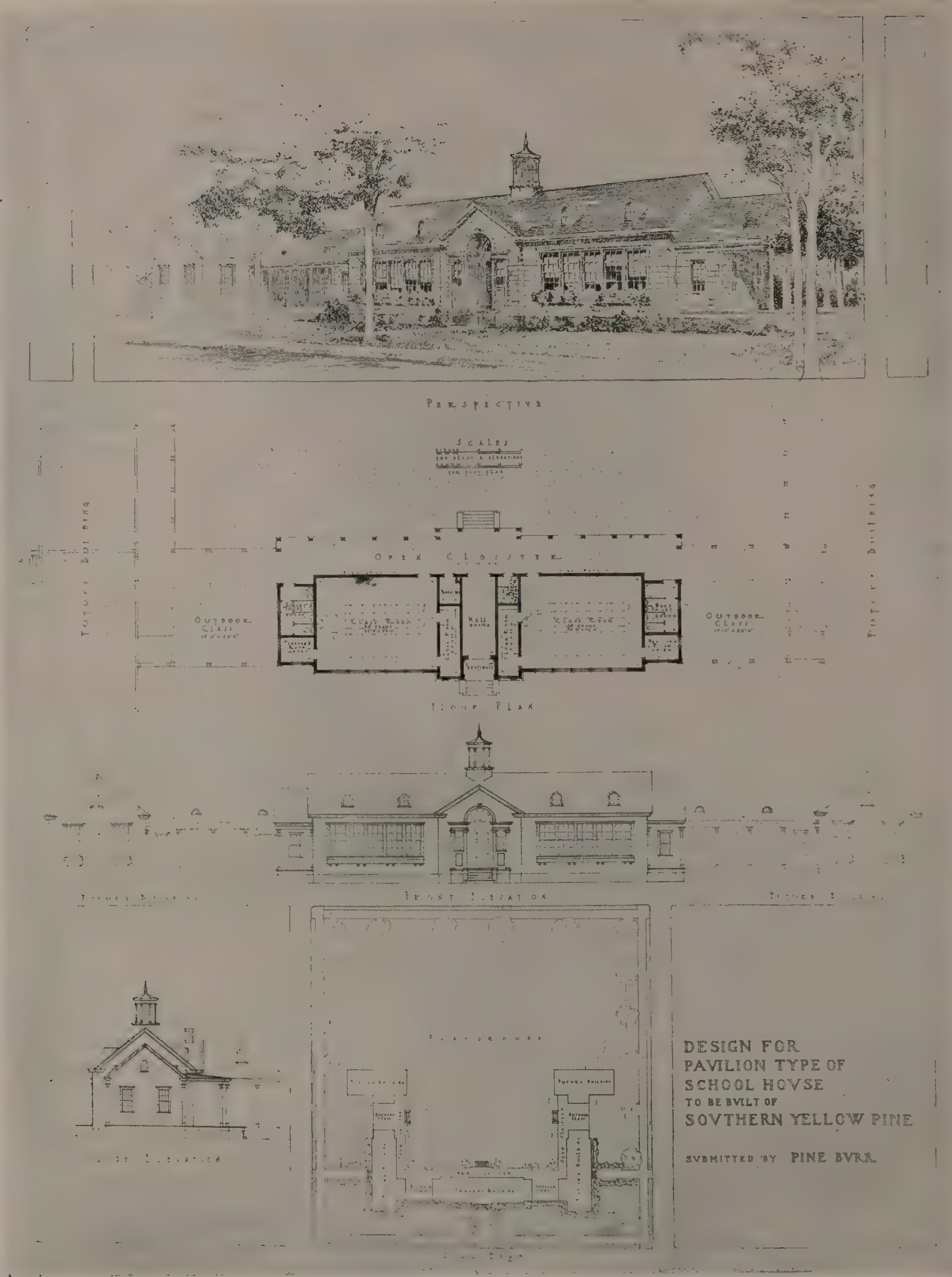
The units, being one-story structures of moderate size and semi-detached, are readily provided with ample light and ventilation, while lending themselves to the most economical methods of construction, as small communities may erect one or more units at a time as needed.

The various unit buildings, assembled about an open court, permit of larger playground space in an unbroken area, in contrast to the narrow and "cut up" playground spaces resulting from the common custom of locating the school building at or near the center of the school grounds.

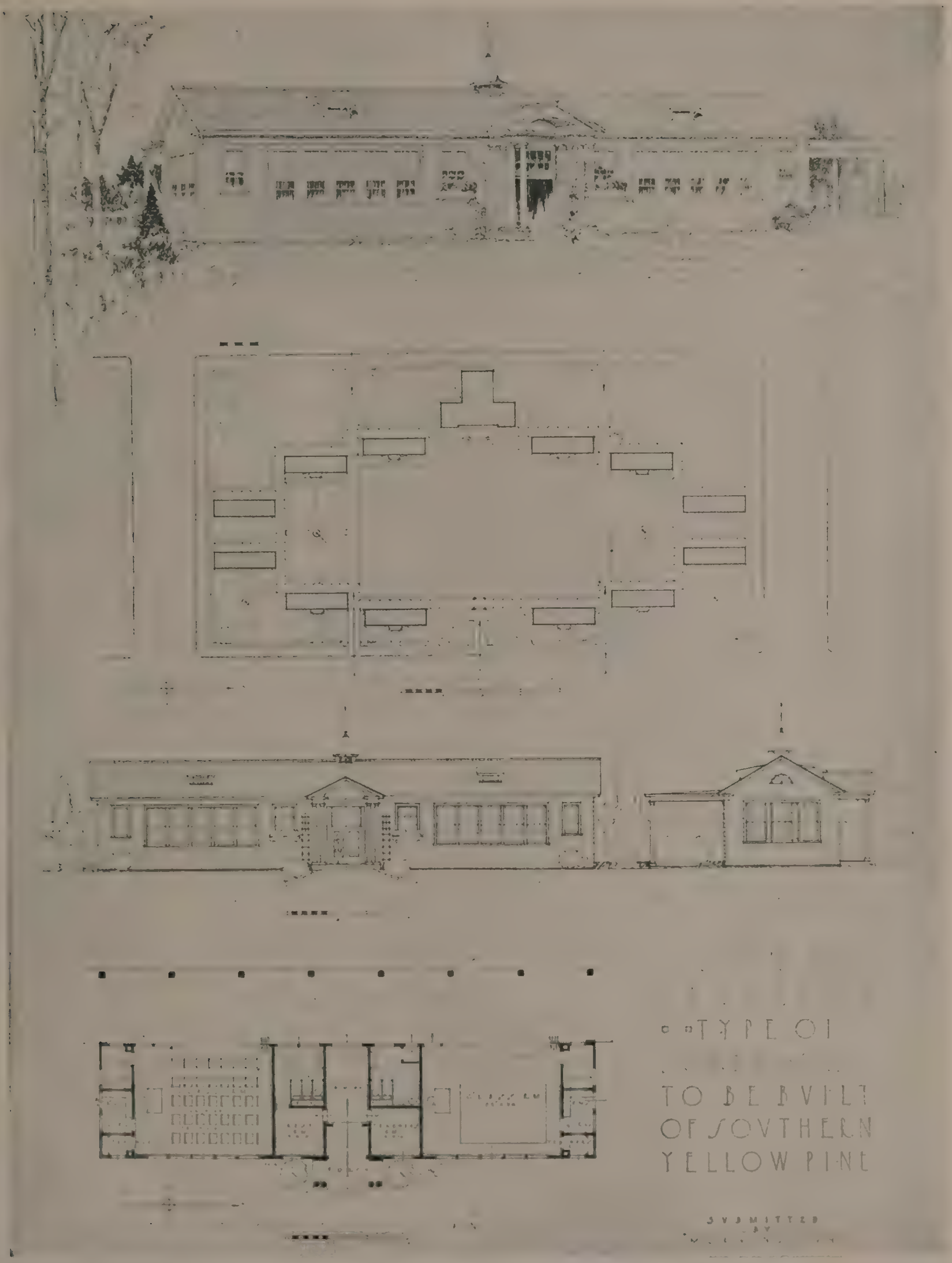
The unit buildings, being of one story only, eliminate danger of injury or loss of life by fire. High buildings used for schools subject pupils, teachers and parents to incessant nervous tension, the uneasiness incident to constant apprehension of fire. In the Pavilion Type school building there not only is no danger of children being cut off from escape from a burning building, but there is no danger of fire panic — mad rushes in which children are hurt more often than in the fire itself. There is no record in this country of a school pupil losing his life by fire in a one-story school building.

Stair climbing, often a serious hardship, especially for girl pupils, is done away with in the Pavilion Type school.

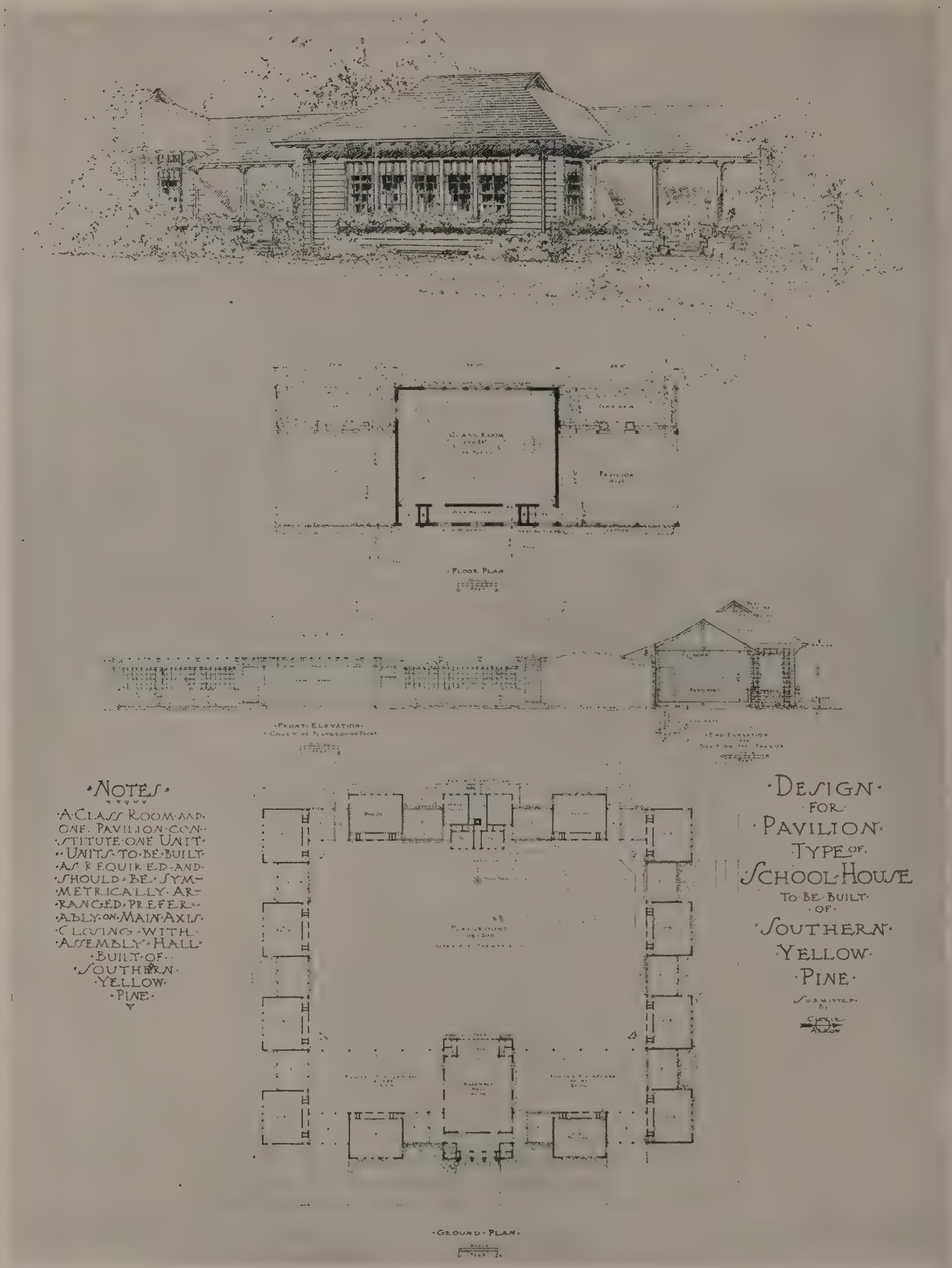
The covered cloisters connecting the units of Pavilion Type school buildings provide convenient spaces for holding outdoor classes in pleasant weather, an advan-



The Pavilion Type School House, Particularly Adapted to Industrial Community Developments.



There is Opportunity for Infinite Variety in Designing the Pavilion Type School.



·NOTES·

·A·CLASS·ROOM·AND·ONE·PAVILION·CONSTITUTE·ONE·UNIT·
·UNITS·TO·BE·BUILT·AS·REQUIRED·AND·SHOULD·BE·SYMMETRICALLY·ARRANGED·PREFERABLY·ON·MAIN·AXIS·CLOSING·WITH·ASSEMBLY·HALL·
·BUILT·OF·
·SOUTHERN·
·YELLOW·
·PINE·

·DESIGN·
·FOR·
·PAVILION·
·TYPE·OF·
·SCHOOL·HOUSE·
TO·BE·BUILT·
·OF·
·SOUTHERN·
·YELLOW·
·PINE·

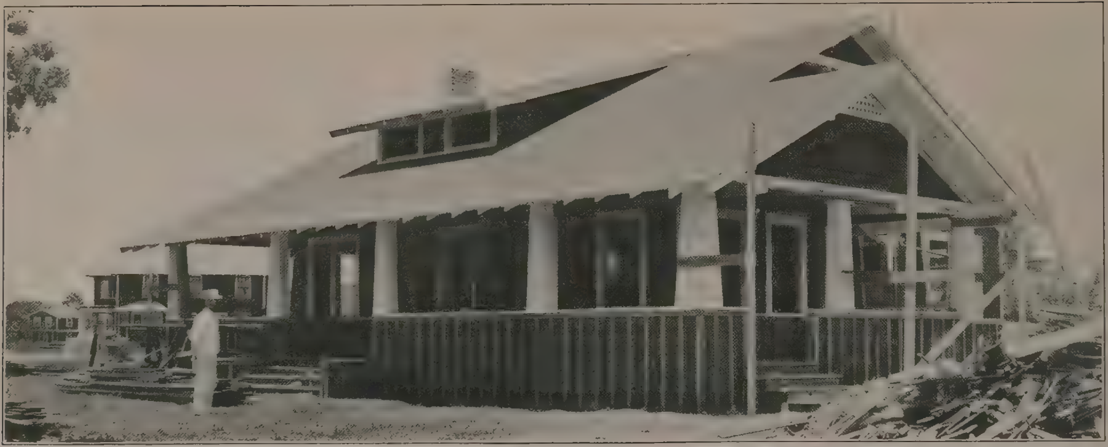
Another Attractive Design of the Pavilion Type School House.

tage tending to promote the health and comfort of pupils and teachers.

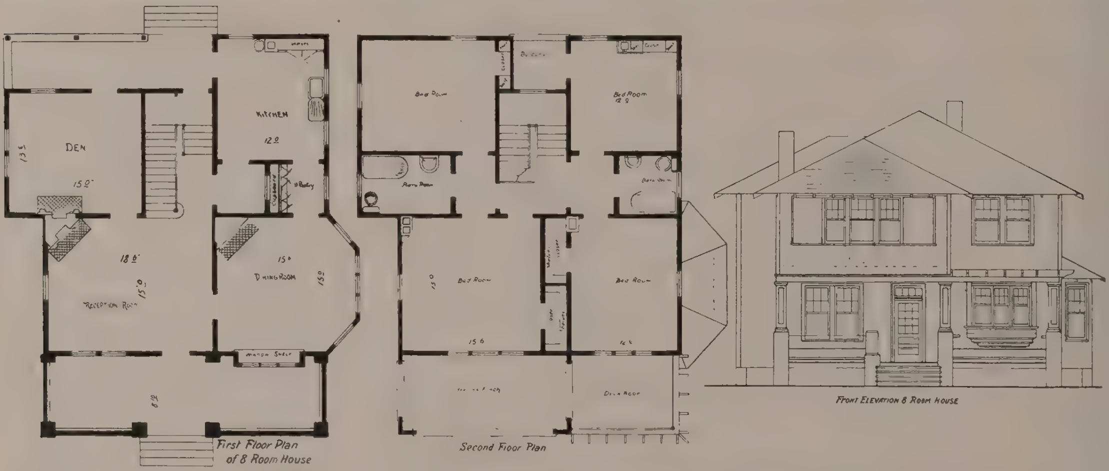
The central playground, away from the street, is safer for the children and keeps them more directly under the eyes of supervising instructors. In addition, a portion of the open court may be roofed over, providing a covered open air playground in wet and stormy weather.

The Pavilion Type of school, while lending itself perfectly to the most economical frame construction with no sacrifice of serviceability, further saves the necessity of growing communities assuming a heavy indebtedness for large buildings designed to meet future, rather than present needs.

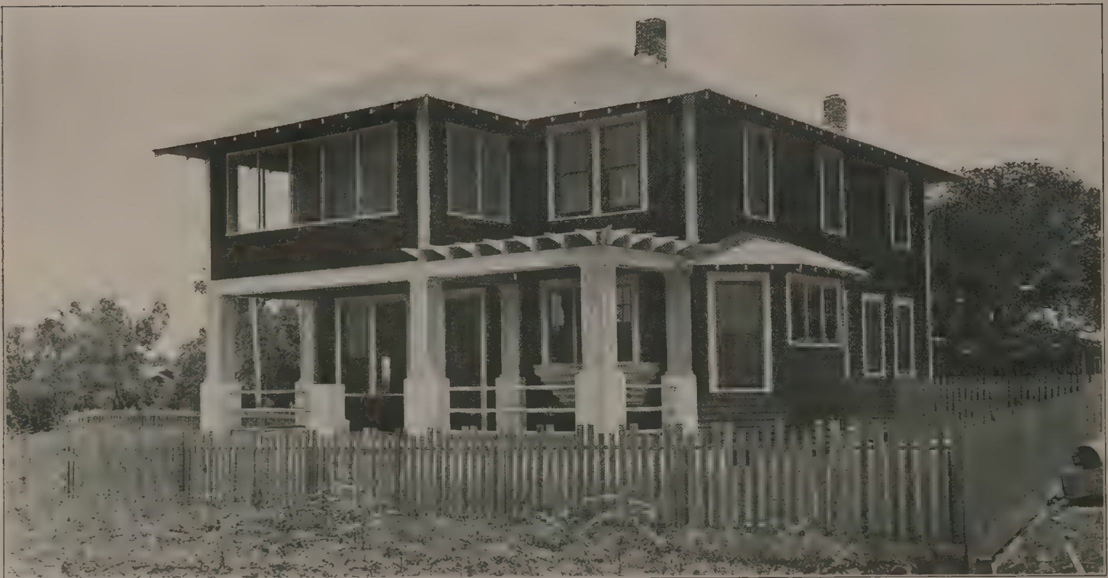
The designs submitted in the Southern Pine Association architectural contest provide for the unit buildings being separated by not less than twenty-five feet; each building to contain from one to three rooms, each room capable of accommodating not less than thirty-five pupils, and each building to be generously lighted and ventilated, and equipped with cloak closets, etc.



Chief Engineer's Cottage, Pascagoula, Miss.



Floor Plans and Front Elevation of 8-Room House, Pascagoula, Miss.



General Superintendent's House of Ten Rooms, Pascagoula, Miss.

PASCAGOULA, MISSISSIPPI

A HOUSING DEVELOPMENT FOR THE EMPLOYEES OF THE INTERNATIONAL SHIPBUILDING COMPANY

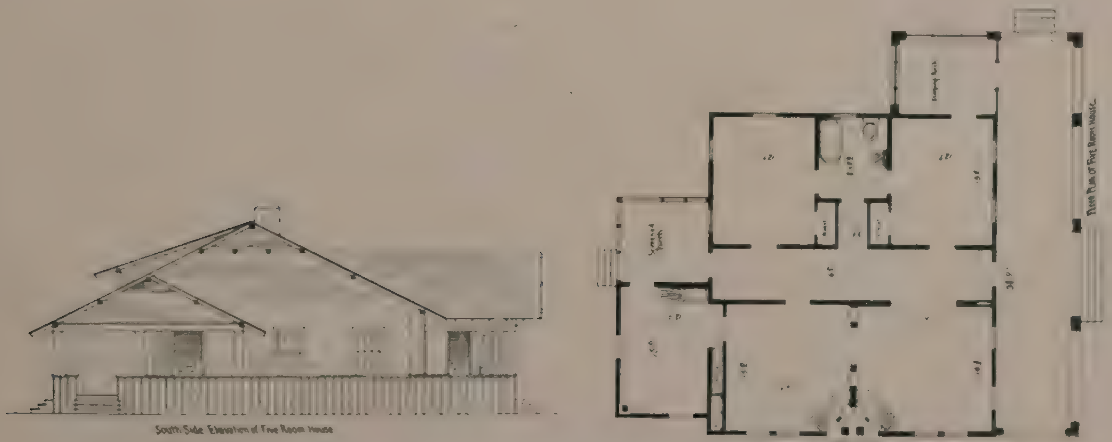
WHEN the International Shipbuilding Company undertook emergency ship construction shortly after the entrance of the United States into the late war, labor housing facilities at the town of Pascagoula, Mississippi, where stands the company's plant, were found to be entirely inadequate to take care of the large force of workmen required for the plant.

The company immediately undertook the construction of homes for its workmen, the plans providing for structures of from three to nine rooms each, and of attractive design. To provide sites for these homes about 300 acres of land were purchased in Pascagoula adjacent to the shipyards. This land was platted, and by the beginning of 1919, 285 homes had been completed. The general plan provides for the erection of approximately 400 houses, which will fully occupy the available ground owned by the company, as well as for a number of community buildings.

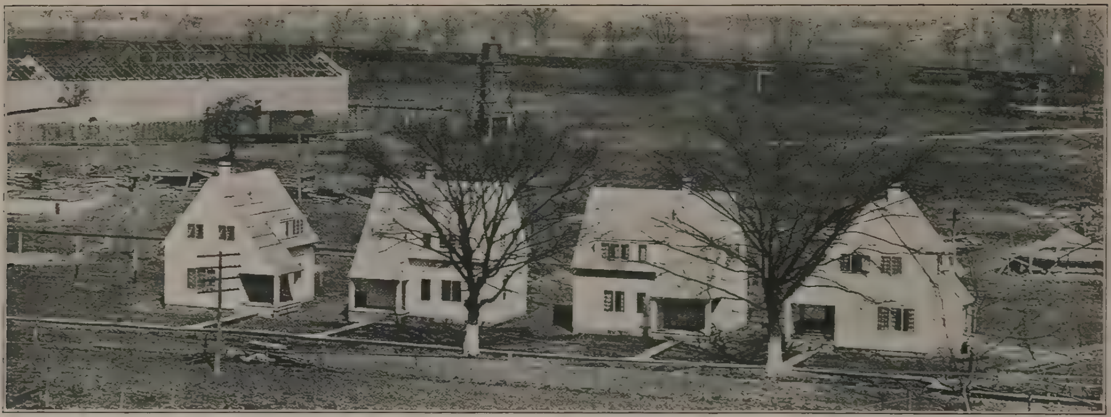
As the homes were erected water mains and sewers were laid, and all of the houses were supplied with city water and electric lights. Streets were laid out with an eye to beauty and utility, and were improved as rapidly as possible during the progress of the home building. The general plan provides for a civic center and community recreation house, and the company will operate a hospital for the benefit of employees.

All the homes are built of Southern pine throughout, following varied exterior designs with a view of avoiding architectural monotony and adding attractiveness to the community. The exteriors of all houses are stained in agreeable shades, and the shingles used in roofing also vary in color.

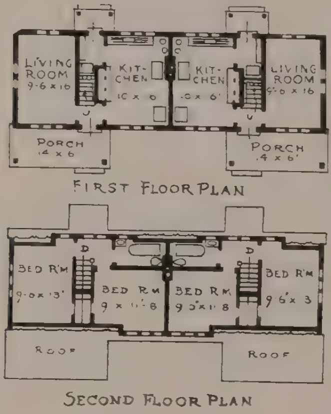
The homes are rented to the workmen tenants on such terms as to make them highly desirable from the tenants' standpoint, while at the same time returning a reasonable return on the investment to the company.

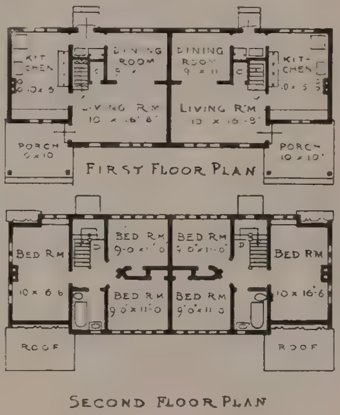

South Side Elevation of Five Room House
Floor Plan of Five Room House
Sleeping Porch
Screened Porch

Front Elevation and Floor Plan of 5-Room House, Pascagoula, Miss.



Houses at St. Albans, W. Va., with Floor Plans of Types A and B Houses





ST. ALBANS, WEST VIRGINIA

A DEVELOPMENT FOR THE ROESSLER-HASSLACHER COMPANY

MURPHY & DANA, *Architects*

Date of Construction: May, 1917.

Cost: Per family Type "A"—$1,500; Type "B"—$1,600.

Rents: Per month Type "A"—$12; Type "B"—$15.

Type: Groups of two-family houses (see plan). Type "A"—four rooms per family; Type "B"—six rooms per family.

Construction: Entirely of frame supported on wood posts. No cellar.

Exterior Finish: Walls of clapboards painted white, applied over building paper and wood sheathing. Roofs—Dark gray asbestos roofing over wood sheathing. Exterior trim, including doors, door frames, window sash and window frames, painted apple-green.

Interior Finish: Walls and ceilings of composition board, papered in the bedrooms and painted in living rooms and kitchens. Floors of pine coated with waterproofing material. Doors and trim painted.

Heating: Steam heat—source: exhaust steam from boilers in chemical plant.

Lighting: Electricity; gas for cooking only.

Special Features: Vegetable pit for storage with trap door in kitchen. Large groups of casement windows in bedrooms so that each bedroom is practically an open-air sleeping porch; the reason for this being that the tenants using these houses very often work all night and have to sleep during the hot part of the day. The side walls and ceilings of bedrooms are insulated with ½-inch thick fiber-felt insulating material.

BROADER ECONOMY IN THE MAINTENANCE OF AN INDUSTRIAL VILLAGE

By HORACE B. MANN

IN a general analysis of the proper and economical maintenance and management of an industrial housing group, the subject naturally divides itself into two aspects for consideration as follows:

1. Physical maintenance, involving inspections and timely repairs in a constant effort to check depreciation.
2. The human element in maintenance, taking advantage of deliberately induced psychological reactions and commonizing the interests of tenants and the housing company.

A definite reason to which may be ascribed the failure of many promising housing projects has been the inability or unwillingness of the original owner or developer (usually a manufacturer) to realize the great importance of properly maintaining the community, socially as well as from the purely physical viewpoint.

This general attitude on the part of American manufacturers has in many cases resulted in a termination of direct interest, once the houses were built and tenanted. This has been partially due to their unwillingness to attempt an apparently expensive program of supervision, although in reality if such supervision were placed upon a systematic, common sense basis, it would repay the cost many times over in the saving on depreciation and mechanical cost, and in maintaining the intrinsic and social value of the community. The problem of maintenance is not a burden to be cast aside, but constitutes the often unrecognized basic factor of the success or failure of the entire project.

Maintenance Not So Difficult

Maintenance is not so difficult a problem as it may seem on first approach. It offers as an inducement for its successful solution a fair return on invested money; increased labor efficiency; closer co-operation of employer and employee, and the fostering of proper pride on the part of both in good living and working conditions. This helps to reduce labor turnover and contributes its quota to increased plant efficiency. These are the greater dividends on housing investment, and only through maintenance may they be kept up.

Immediately upon the completion of a group of industrial homes it is absolutely necessary to establish a definite policy of maintenance. Only the most inexcusable shortsightedness would permit the making of a large investment and trusting to the occupant's interest to keep up the property.

The close supervision of the property can best be done by a social worker who has the confidence and trust of the tenants. This question will be considered further in later paragraphs. There should be a regularly established repair crew, or if the village is a small one, a single "jack of all trades" could be employed. Reports of needed repairs will be made to the crew or to the official in charge by the social worker and by the tenants themselves. In addition to this, the crew should be instructed to make regular inspections at least monthly, and following the example of large real estate management companies a regular inspection form should be provided for report. Tenants should be educated to promptly report needed repairs, and a line should be drawn distinctly between needed repairs and alterations and additions to suit the tenants' taste. Changes and alterations which the tenant desires may well be made as a premium for the prompt payment of rent or neatness in which the place is kept.

Keeping Down Repair Costs

An interesting method of keeping down repair costs, and inducing the tenant to make his own minor repairs, has been carried out by the Gerard Estate, Philadelphia, Pa., by the Octavia Hill Association, Philadelphia, Pa., and some others. If the tenant keeps the property in good repair and pays his rent promptly for eleven months, he is not required to pay the twelfth month's rent; any repairs needed are deducted from this rebate and the balance remitted to the tenant.

Another method of maintaining repairs is to make a monthly arrangement with a local firm to inspect the property and handle all repairs upon request from the owner. In making such arrangement it is best to have inspection reports made by this concern, showing needed repairs, but allowing no work to be done except on direct orders from the company.

Promptness in making needed repairs means a large saving during the course of a year. A small leak in the roof, if neglected, would entail replastering ceilings and repairing other damage done by the water.

Following are some suggestions which offer money-saving possibilities in the maintenance of an industrial village:

After heavy storms look at the ceilings of the top floor for traces of water indicating leaky roofs.

When building is vacated, be sure the water is turned off, and in cold weather drain it from the pipes, not only in the plumbing system but where steam heat is used, from the steam heating or hot water system as well. Water should also be syringed out of traps.

See that the grading around the building is such as to shed surface water away from the building rather than bringing it into the cellar and around the foundations, with ensuing deterioration throughout the house.

The Care of Empty Houses

Empty houses should have all rubbish removed and blinds shut and fastened on the inside and shutters over the windows. These should be inspected regularly to see that all doors and windows are locked. Very frequently a house is badly damaged by mischievous boys.

See that tenants do not drive nails into plaster or woodwork.

Picture mouldings should be furnished for hanging wall decorations, and it has been found wise to supply each house with free picture wire and hooks.*

Periodic inspection should be made of plumbing fixtures. Leaky faucets should be repaired. Proper chemicals should be poured down kitchen sinks. This should be done in laundry trays as well, as much grease accumulates at this point.

At the end of the winter the heating system should be gone over and smoke pipes taken down and cleaned. This will greatly increase the life of pipes.

Outside masonry should be kept pointed up, especially around the top of chimneys.

Economy In Frequent Painting

Frequent painting of exterior woodwork not only keeps the house looking fresh, but costs no more in the end, because when neglected the wood dries out and has so increased in absorptive power that one or two extra coats have to be put on to overcome this. Buildings should be repainted at least once every three years.

Wooden structural members should be replaced wherever signs of rot appear. Rot in porch floors and steps is due to their being built so that they hold rain water instead of shedding it. Porch floors should never be tongued and grooved, as water is retained in the groove and rotting quickly sets in.

An important question for consideration is whether maintenance should be handled by the housing company or by an association of the tenant owners of the property. This brings up the question of the human element in the maintenance of an industrial village.

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* One company which recently built a large number of very cheap bungalows for foreigners has found the question of substantial plastering a most important item. The plastering in these houses was very cheap and thin, and was soon badly broken in many places. Substantial plastering in this case would have stood up much better and saved the cost of entire replastering. In these houses the evidence of the value of a properly trained social worker was soon shown. Many of the workmen and their families did not know how to live in a decent house. They destroyed interior woodwork, burned the interior doors, and in other ways caused rapid depreciation which educational work on the part of the social worker could have prevented.

The Human Element In Maintenance

If the tenants are generally of an intelligent type, it is well to let them handle practically all matters of maintenance through a community organization. In this organization the housing company should maintain a vote of at least 25 per cent. Where houses are sold, this control is often kept by retaining the ownership of streets, parks, and playgrounds. This association may maintain a repair crew and will also cover public maintenance, such as the keeping up of lawns and parking spaces, shrubbery and trees, leaving the back yards in care of individual tenants. Where public utilities and road repairs are not maintained by the city of which the community may be a part, the community association usually has charge of these and also the shoveling of walks in winter, the removal of garbage and ashes and other sanitary maintenance. The cost of such maintenance may be distributed against the property as a tax, or it may be carried on at the expense of the owning company until such time as the tenants may become educated to bearing their proper share.

For extension and improvement of public utilities, various methods are followed, one being to assess against individual property owners in the usual manner, another to add this potential cost to the land before resale, and still another by popular subscription. It is often found that the general community may be induced to maintain the roads and parks and to put public utilities into the housing development.

Where the class of tenants is not capable of handling such affairs they must, of course, be kept within the control of the housing company. The advantage of the community association plan is self-evident. It creates community co-operation and inspires better individual maintenance.

A trained welfare worker is perhaps the most valuable adjunct to the proper and economical maintenance of an industrial village. Among the ignorant and foreign classes, education will go a long way in preventing deterioration. Frequently tenants of the foreign common labor class are unfamiliar with the use of toilet-room facilities, and clog the drains through ignorance, resulting in much damage. In one housing development at Bethlehem, Pa., attempts were made to remove these stoppages by taking a crow-bar and punching a hole in the porcelain. This undoubtedly cleared the stoppage, but incidentally discharged the sewage under the building.

Welfare Work A Financial Benefit

Proper welfare conditions exercise a most beneficial influence on the problem of maintenance. We usually find that the higher we go in the various classes of city dwellers, the less is the damage done to houses by tenants or through carelessness. Bearing in mind this inverse proportion, welfare work which develops thrift, a high moral tone, and good fellowship, with the establishment of a cooperative spirit between tenant and owner, will result in direct financial benefit.

Good fellowship may be encouraged by introducing sports and social functions under the auspices of the community organization. Thrift and moral tone is spread through the medium of contagion by carefully selecting families which possess these qualities, encouraging them, and locating them so that they may act as proper examples.

As before stated, the welfare worker will be a great aid in reporting needed repairs. Rent collecting should be handled carefully, and it is always better to designate a period from the first to the fifth of every month when the tenant may come to a central office and pay rent voluntarily rather than to have a rent collector call at the individual houses.

For final consideration, we have the interesting subject of community farms and gardens which should always be encouraged. If a village can be arranged with allotment gardens distributed in specially designated plots throughout the village, it has the advantage of increasing the space between buildings, bringing each individual garden nearer the owner, grouping them for common plowing and fertilizing, and decreasing the size of back yards. In case a tenant does not wish to maintain a garden, he has not a large back yard space to be neglected and filled with rubbish.

Possibilities In Co-operation Gardening

A possible development of the village association would lead to the maintenance of a farm, supplying products to the village, and distributing the products which they may raise. This farm may be carried on for educational purposes and can be made to pay its own way. The farm organization could plow the allotment gardens or even individual gardens which should be arranged so that boundary fences do not interfere. The farm organization could also manure the ground. Having a farm organization, different tenants could specialize on special vegetables as assigned to them. The farm organization would collect the crops and keep proper book accounting records. The Canadian Government is working out a plan for rural community developments to provide proper home sites for returned soldiers. This plan includes farming and gardening on the co-operative plan.

The arrangement of allotment gardens has greater economic value then the same space given over to individual gardening, which must be worked by hand. Many men who are fond of gardening are often discouraged by having to do the heavy work by hand. With the allotment garden, plowing, harrowing, and similar operations can be carried out by machinery, and sprinkler systems may be installed for watering.

The question of maintaining property which has been sold in a village is a very important point to be considered. Certainly, unity cannot be preserved if property owned by private parties is allowed to deteriorate, at least in those respects where it comes in comparison with properly maintained property, such as the sidewalks, curbs, front lawns, and street planting.

A Proper Tax for Maintenance

The best method of solving this problem, and one which has worked out most successfully at Kensington Gardens, Long Island, N. Y., is to impose a tax in the way of a restriction to be paid by every owner for the proper maintenance of streets, sidewalks, and planting. It was found at Kensington Gardens that a few cents a running foot of lot, amounting perhaps to $8 or $10 a year, would take care of this for each property owner.

Architectural unity is another element in making for the success of a village. The best way to obtain this is, of course, to have all the buildings designed at one time, either by one architect or by several in consultation so as to secure unity in design and especially in grouping. If this cannot be done, but the policy of the property owners is to sell lots for individuals to build their own houses, then some form of restrictions should be made, not only as to the position of the house on the lot, the setback from the street, the height of the house, and the location of the garage, but even in the material and color of the house itself. At Forest Hills, Long Island, the roofing material was restricted to one material and color. Almost any material could be used in the house itself, but unity of roof was insisted upon, and the result was most successful in maintaining the unity of the ensemble.

The importance of maintenance cannot be overestimated, and some form of community maintenance has proved to be in every way the most efficient and economical.

WHAT BAD HOUSING MEANS TO THE COMMUNITY

By ALBION FELLOWS BACON

WITHIN the last few years we have awakened to the fact that every one of our states has a Housing Problem. We have learned that our working people, as a rule, are poorly housed. We have been startled by the realization that, in most of our states, the poor have apparently no legal right to sunlight, air and water, and that in many of our cities only those who can afford to pay for these commodities get them.

We have discovered that what we have always thought were just old houses, where poor folks lived, were really slums.

We have seen that many of our wealthy people are building the kind of houses that eventually make the worst kind of slums. We have learned, too, that slums are not a matter of size; that they are not dependent, even, on congestion — only made worse by it, just as disease is always more dangerous when congestion occurs.

The old misconception that only great cities could have slums is passing away. We have come to see that just as London and Berlin, New York and Chicago, each has its distinct type of slums, so has Boston, Cincinnati, Louisville, Indianapolis, St. Louis, San Francisco, Milwaukee, and the smaller towns of all our states. Even in our villages we find types which would be a disgrace to a crowded city.

Only a few of the states have recognized the fact that they have a Housing Problem. Nevertheless, the same problem exists in every state of the Union. There is the same problem of getting enough houses to shelter all the people, as a city's population increases. There is the same problem of preventing the erection of unfit and unsafe houses; of letting fit houses become unfit, and run down to slums, by deterioration and overcrowding. There is the same problem of already existing slums. If there is any difference in the slums of different sections of the country it is no more than the difference in language of those sections — just dialects, different pronunciations of poverty, neglect, wretchedness.

What Is Bad Housing?

Any condition of housing that, in itself, tends to impair the physical or moral health of the tenant, is bad housing.

Any condition of housing which is unsafe or unsanitary, or in any way unfit for living or home-making, is bad housing.

Any condition of housing which is damaging to the community, is bad housing.

These conditions are to be found, in varying degrees, in all grades of dwellings, from the expensive but unsanitary flat, well kept and uncrowded, to the most wretched and abandoned hovels, filthy and overcrowded, which are called slums.

Go through the dwellings of the poor, in the cities, and you will find that most of them come under all the definitions of bad housing. Their most common evil is the lack of water, drainage and sewerage. Many houses have no city water; in some cities there are cisterns, but these are generally uncovered and polluted by trash as well as by seep water from the undrained yard vaults. In many cases from eight to ten families have to depend on one cistern. In one of our cities twenty families in one tenement have to carry all their water from a fountain a square away. The yards, being undrained, are sodden and foul smelling, the old suds and dishwater standing in slimy pools covered with scum. Typhoid, chills and fever result from these conditions. Many of the houses are built level with the street and have a tiny backyard, piled up with ashes, garbage and rubbish, there being no receptacle provided for it and in most places no provision for its removal. Decaying outbuildings stand on the rear of the yard. The filthy yard closet and its accompanying vault, generally a cesspool, fills the air of the neighborhood with stifling odors, spreads contagion by means of swarms of flies, and seeps through its crevices into the soil.

The house itself is often decayed to a degree of danger from collapse or fire. Dilapidation is the rule, although this is not considered one of the cardinal evils. But an old house is like an old sinner — so much meaner the older it gets. With each generation of tenants come successive strata of dirt, and countless generations of germs that gather in the loose cracks of the woodwork and the broken plastering. The stairways are rickety and unsafe. Many of the houses are low and damp, often built flat on the ground, so that mud from the yard washes over the floor when it rains. Few of the houses are properly ventilated. Even in villages we find rooms without windows. In some towns the poor live over warehouses and stores, the middle room (used for sleeping) being totally dark and unventilated. Many of the new tenements have windowless rooms. Cellars are unknown in some towns, but in others are sometimes used for dwellings, and are generally damp and filthy.

The rear tenement, on the alley, is one of the worst evils, for the reason that stables and vaults are also on the alleys, the latter often being full of filthy refuse. In some of these dwellings old cesspools are under the floor of the living room. Garbage barrels, against the windows, require them to be closed. Some families share a stable with horses or mules. In one city, where hundreds of rear tenements have been built recently, they are crowded against the yard closets of the front building. These being in bad condition, the doors and windows of the rear tenement have to be kept closed. In these places also there are no sewer connections and the yard sinks are always overflowing. In another town, houses of five rooms, or even less, have from ten to twenty boarders (a day shift and a night shift of workmen), often among them a consumptive. Here it is common to find holes dug in the ground for garbage.

The scarcity of good houses makes it necessary that many workingmen's families, whom manufacturing calls to our cities, shall take any house they can find. This very often brings them into a slum neighborhood and sometimes into the same tenement with families whose habits are a menace to their own family. The normal family, put into a subnormal environment, sinks to the subnormal, physically and morally. Too often the course is short and direct — illness or death of bread winner, debt, dependency, delinquency.

What Bad Housing Means to the Tenant

The physical consequences of bad housing are the ones most plainly seen. There are always cases of sickness in the tenements. One wonders, breathing that foul air, how any one can be well in such places. In the dark, damp rooms of the poor germs of disease live and multiply, lacking air and sunlight to destroy them. Tuberculosis is fearfully prevalent for this reason. Rheumatism and colds, with all their train of troubles, are caused by the dampness of the old houses, flat on the ground. Typhoid, chills and fever are caused by impure contaminated water and lack of drainage.

Overcrowding brings serious physical results. These have been clearly demonstrated in a startling way by a "congestion chart," which shows that children reared in a one-room dwelling are smaller than children of the same age and sex reared in a two or three-room dwelling, the weight and height both increasing with each added room. Professor Patten declares that: "It is the environment of the poor that inflates the death rate, and dwarfs them below the stature of a man." Miss Harriet Fulmer, superintendent of the Visiting Nurses' Association of Chicago, says: "Two-thirds of the delinquent children come from homes where dirty, illy ventilated rooms predominate; two-thirds of the physically ill children from the same; one-third of the shiftless mothers from the same; two-thirds of the deserting fathers from the same. In a study of fifty backward children in an ungraded school of a large city, forty-three of these children occupied homes that it should have been the business of the state to see they did not exist."

Horsfall notes the deterioration of the English townspeople, under the influence of bad housing, and says that: "Out of 11,000 men from Manchester, only 1,000 were physically fit to enter the army," and quotes a German author, who says that: "The men of Manchester are a degenerate race." Hunter lays great stress on sanitary housing as one thing necessary to keep a man in good working condition. One English author boldly says: "Poverty is largely due to bad housing. Put an applicant for relief under better housing conditions and his health will in most cases much improve, enabling him to earn more and taking him off the hands of the charitable."

Those who deal with the problems of charity can testify that this is true.

When a family of ten, living in three rooms, takes in boarders, modesty and morality are apt to be crowded out. Even with only one room to a family boarders are sometimes taken and visitors are frequent. At the St. Louis National Charities Conference, Jane Addams spoke on "Bad Housing as a Social Deterrent." She pointed out the fact that if a house were so crowded or so uninviting that a girl had no fit place to invite her men friends, she met them on the streets or at the dance halls. It is no wonder that boys and men — and girls and women too — fly from their dreary homes after a day of toil in the grimy shops. Their gray lives cry out against the gray walls for color and brightness, and they go out into the brilliant streets or to the inviting saloons to find cheer.

What Bad Housing Means to the Community

Bad housing affects the entire community, touching the individual, the family, the neighborhood, and corrupting the social and civic life of the whole city. It is the cancer that sends its poison to the finger tips of the social body. It is the rotten foundation upon which the civic temple unsafely rests. The direct effects of bad housing upon the tenant bring a large part of the community under its shadow. It is the effect upon the individuals who are not tenants but neighbors, or citizens of the same town, that we wish to show.

The effect of the slum is apparent in its own neighborhood. Slums being often scattered, the poison is scattered in so many districts. We may find a row of the worst kind of houses at the rear of a fine residence block, or a single wretched tenement set among neat and well-built houses. In the factory district the better class of workmen's cottages have squalid shacks or tenements interspersed among them, so that they are beset on all sides with the annoying sights and sounds and the unwholesome conditions of filth, with the disease-spreading swarms of flies which the thrifty workingman's wife would banish from her own neat premises. The loathsome cesspools and decaying garbage of one neglected house are enough to poison the air and spread contagion to a whole neighborhood. In the same way may moral contagion be spread from one center of vice.

The neighborhood is interested directly in the buildings erected in a city, on account of their influence on the ventilation of the blocks and the streets. On sultry July nights, when the heavy odors of the vaults and foul alleys pervade the block, the tall buildings, covering the entire corner lots, shut off all the air supply from the tenants of the inner lots, who are in a position to appreciate the need of "block ventilation." The injury done by crowding tall buildings together goes still farther and poisons the arteries of the whole city. Notice how the air, so fresh and pure in the suburbs, where houses are scattered, grows denser, fouler and more smoke-laden, block by block, till, where tall, close rows of buildings line both sides of the streets, the air is heavy and stale. In some districts the odor of leather, fish, fruit or beer seems never to be changed unless a gale blows.

Dead, vault-like air issues from the doors of the business houses. Yet here an army of employees spend their working hours, the employers doomed to the same prison-like air. Overhead, in the offices, our lawyers, architects and men of all professions breathe the unwholesome fumes of the street. In other rear or upstairs rooms, families live, work, sleep. Children play in the pent rooms, babies wail through miserable summers, when the heat rises from the shed roofs and walls, and no air seems to enter at the window, because the tall rows of buildings prevent the ventilation of the street itself.

The influence of the slum on civic life is a sadly familiar story. "You can't let people live like pigs and expect them to make good citizens," says Jacob Riis. Neither can you expect them to make good public officials. The slime of the gutter is too often on our city politics, and the dead weight of the slum hangs about the neck of all civic progress.

What Bad Housing Means to the State

"The two greatest assets of a nation are the land and the people." Other countries, realizing this, protect both land and people by their housing regulations. They find that "land sweating" does not pay, neither does "the practice of crowding the poor onto dear land and leaving the cheap land vacant." Preventing this, they save money as well as lives.

The appropriations required by tenement commissions, when the evil is allowed to grow so that a large corps is required to handle it, are a small part of the expense of slums. When it becomes necessary, in order to save human lives, to tear out the buildings of a whole slum area, involving millions of dollars, the public begins to realize the costliness of slums.

To determine what bad housing means to the State we must remember what it means to the citizen and the community. Then we must consider that "the slum is the enemy of the home," and "the home is the key to good citizenship." Crime and disease, defectiveness, delinquency and dependency, are traced to the slum. The cost of these to the State has often been emphasized. The expensive processes of the law and the maintenance of costly institutions are both included in the estimate. This does not include, however, the loss of citizens, by death from disease or crime. Many of these are adults — workers, producers, part of the State's industrial capital. The inefficiency of the workingman, from sickness, reducing his earning power and causing the dependency of his family, must also be counted. Now, sum it all up and see what is the loss to the State on account of bad housing.

There is a loss of property, a loss in property values, a loss in the expense of crime and dependency, a loss in the expense of disease and in the death of citizens, a loss in the efficiency of the workingman, a loss in homes, a loss in citizenship.

Who Is Responsible for These Conditions?

The citizen, the architect or builder, and the landlord are responsible for these conditions. This does not include the models of each class; only those who build or rent or allow objectionable buildings.

The responsibility of the landlord is a new thought in this part of the country. We are just beginning to understand that "a man has just as much right to kill another man in the street with an axe as he has to kill him with a house." We are learning that to collect rent from our old death-traps of tenements is really to take blood money. It has been the custom to blame the poor for their surroundings, on the ground that they are shiftless and dirty. But how can they be clean without water or drains, or any provision for ashes or garbage? How much bathing or washing would any of us do if we had to bring every drop of water we used from a fountain two squares away, carry it up two flights of stairs, heat it on a broken stove, and bathe in a wash basin?

We cannot blame the architects of today for the mistakes in our old houses. They were the blunders of the old builders, whose victims fill our grave-yards. We are tempted to smile sometimes as we explore their musty rooms and note the elaborate pains with which they avoided proper ventilation, the ingenuity they displayed in making houses inconvenient and uncomfortable, and their lofty disregard for sanitation. But alas, while it would enrich comedy, it is engrossed by tragedy. The architect of this day knows better than to make such mistakes. He knows that every room which human beings occupy must be supplied with sunlight and air. If he deliberately plans the administering of fatal doses of carbonic acid gas, it is as bad as it would be for a doctor to deliberately prescribe fatal doses of laudanum. The fee involved, the "convenience" or greed of his client, does not lessen one whit the responsibility of the architect.

The responsibility of the landlord for the condition of the dwellings he rents is recognized by the laws of England and Europe, as well as by all the tenement laws of our country.

It is fully recognized in the case of the higher class of tenants, who demand necessary repairs and the correction of unsanitary conditions. But in too many cases where the lowest class of houses are rented the responsibility of the landlord is evaded, and advantage is taken of the tenant's ignorance of the laws protecting him. "Don't send the health officer, because we'll get turned right out in the street if he comes and makes trouble," has been the appeal of tenants whose cisterns were polluted, and whose cellars were half full of water.

Yet the owners of these houses know very well what is necessary for the sanitation of a dwelling, as is shown by their careful provision for their own homes.

The Housing Problem takes in not only the "multiple dwelling," or tenement, but the single or detached dwelling, in which only one family lives. Hundreds of our poor live in wretched shacks or hovels. Thousands of families of self-respecting workingmen live in dingy, dreary blocks or rows of houses, flimsy and cheaply made, like pens or boxes, with no thought of comfort, convenience or even sanitation. Such dwellings constitute a very serious part of the housing problem.

The responsibility of the citizen lays upon him the obligation to know the conditions of his own community, and to do all in his power to prevent the evils that threaten his home, his community, his State. The majority of the people are in utter ignorance of the slums of their own town and are not even aware that they exist. This was repeatedly shown during an investigation into the housing conditions of one of our States. Even those who take part in charity work, as a rule, do not visit the homes of the poor, but leave that to be done by the Charities Secretary. If our citizens would only learn the truth about slum conditions, they would not tolerate their existence.

"*No housing evils are necessary; none need be tolerated. Where they exist they are always a reaction upon the intelligence, right-mindedness and moral tone of the community.*"

Not Tenements, But Homes!

In this great country we have vast reaches of primeval forest, unmeasured miles of mountains, plains and prairies, where only an occasional cabin stands. We have unbuilt wastes where the hermit has no neighbor. Unpeopled hills stand lonely, overlooking the straggling hamlets of the wide valleys. We have room for every one, room and to spare.

There is not a state in the Union, east or west, which has not land conditions that would afford plenty of space, without crowding, to every one of its town dwellers. In the suburbs of our cities there is room for every working man to have his house and garden, and the remaining land would be all the more valuable.

Ruskin laments that in six thousand years of building we have not yet learned how to house our poor.

And what is the glory of our architecture, if the poor must hide in dens and holes?

What is our boast of greatness and strength, if the weakest are not cared for?

What is our pride in mental achievement, if the thought of the people tolerates filth and degradation?

What is our advantage in wealth if poverty and crime threaten our treasuries?

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GARDEN SUBURBS, VILLAGES AND HOMES. *By Henry Vivian and Others.* Garden City Press, Letchworth, Eng. 9d.

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NOTE.—There are numerous publications by the Co-Partnership Publishing Company, Ltd., London, all of which give valuable information growing out of the co-partnership experiments which have been made in England. A full list can be obtained from the publishers. Two of the more important ones are: The Pioneer Co-Partnership Suburb, Ealings Tenants, Ltd.; Co-Partnership in Housing in Town and Country.

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